AMERICAN UNIVERSITY OF BEIRUT

ISSUES PERTAINING TO THE INTERPRETATION OF DOCUMENTS CONSTITUTING THE CONSTRUCTION CONTRACT

by
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AN ABSTRACT OF THE THESIS OF

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Contract documents are key components of any construction project, and their clarity is of vital importance. It is not uncommon to encounter defects in these documents during the execution of construction work, whose resolutions could compromise the timely deliverance of the construction contract and potentially lead to disputes. This research work involved carrying out a detailed review of all the clauses that touch upon the interpretation-related processes in six sets of standard contract conditions, followed by an examination of the rules used for the purpose of constructing interpretations of the construction documents. The research findings revealed the various players assigned to undertake any such warranted interpretations, their respective defined statuses, the types of mentioned defects and stipulated resolutions, and the interrelations among, or the priorities of, the contract documents. The two main outcomes are in the form of: (1) an interpretation-rules framework, formulated with the aim of assisting the engineering professional interpreter in the construction of reasonable interpretations; and (2) a proposed model language that offers a comprehensive coverage of terms, which are meant for incorporation under the order-of-precedence clause of the contract conditions.

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CHAPTER I

INTRODUCTION

1.1 Preambles

The most brilliant design remains just that, a design, unless turned into reality by building operations. Such operations generally require a formal agreement that outlines the contracting parties' attempt to reconcile their views of the evolving relationship and their perception of the future course of the project (Puddicombe 1997). The transition from a successful design to a successful building requires a written contract, which typically consists of detailed provisions describing payment procedures, change order procedures, insurance requirements, sub-contracting requirements, and dispute resolution procedures.

Written contracts are used as a legal document, and drafting them requires "comprehensive knowledge in the given field, special skills in terms of consistent use of terminology, proper contractual language and style, clear structuring, and orientation supporting format" (Kovächs 2004, p.304). Therefore, there are various recognized standard contract conditions developed for the construction industry by a number of independent professional organizations. As such, these organizations play a significant role in offering balanced terms, requirements and procedures that can be adopted in executing projects under different delivery approaches (Rameezdeen and Rajapakse 2007).

Despite the attempts to produce clear and coherent documentation, disputes concerning interpretation of contracts are one of the largest sources of litigation, often because parties fail to focus on contract terms(McAdam and Milner 2011). Contract details and terms may contain ambiguities, discrepancies, omissions, conflicts, errors, inadequacies, and divergences within or

among the contract documents. To begin with, ambiguous terms are vague or can take more than one objective meaning(Schwartz and Scott 2010). Ambiguities in construction contracts can be encountered in two ways: patent versus latent ambiguities. When a term is obviously ambiguous in contract wording, it is considered a patent ambiguity; as for latent ambiguity, the terms used are seemingly clear, but contain a hidden meaning(Kelleher Jr et al. 2014). Inconsistencies and conflicts between or among construction contract documents are often found, including conflicts between specifications and drawings, due to the use of "cut and paste" functions during production (Kagan 1985). Other similar situations arise due the consolidation of such documents, while also encompassing the addenda issued prior to the signature of the contract (Kovächs 2004).

Considering the vast amount of construction documents and contracts compiled and signed worldwide daily, it is inevitable that a certain percentage of those would contain inconsistencies and discrepancies. Therefore, analysis and interpretation of these contracts is essential to identify discrepancies, and to solve such defaults or conflicting requirements. This interpretation is often carried out in one of two ways; either during the course of construction by an entity named under the contract; or by adjudicators or arbitrators during dispute resolution proceedings. Engineers, architects, and owners of a certain project often perform such analyses, and this is made possible through the use of an order-of-precedence clause, along with contract language emphasizing the need for all documents to be read in an integrative way. The underlying rationale is that assigning priorities to contract constituents provides reasonable certainty to the outcome(Thomas and Ellis Jr 2007), as commented by the judge in the Fenice Investments Inc vs. Jerram Falkus case (Hill et al. 2010), who said "... the impression can sometimes be given that the draftsman has included in the contract every piece of paper in his office that related, no matter how tangentially, to the project in question. Some form of hierarchy

or precedence is vital ...” (Hill et al. 2010, p.3)Therefore, when two or more documents are in conflict and cannot be harmonized, the specified priorities of the documents may resolve this issue (Kelleher Jr et al. 2014).

On the other hand, rules employed during dispute resolution proceedings are based on two information sources; "the language used by the parties in the contract and the facts and circumstances surrounding contract formation" (Kelleher et al., 2015, p.13). Such circumstances include the plain meaning rule, the parol evidence rule, ruling against the drafter, or ruling by the use of general canons (Thomas and Ellis Jr 2007). For example, in a case of contractual incompleteness or ambiguity, the interpretive methodology rests on using rules such as, the plain meaning rule, which is used to determine the contract clear meaning (DiMatteo 2012).

The interpretation done by either, the entity named under the contract or by adjudicators or arbitrators, depends greatly on the pertinent clauses and language offered throughout the contract. Thus, “the purpose of interpretation is not to find out what the parties’ subjective statements were as to the meaning to be given to a particular term, but what the language of the contract would mean to a reasonable person having all the background knowledge” (McAdam and Milner 2011, p.206).

1.2 Problem Statement

A considerable amount of research has been done by Siha and Wayal (2013) to identify the causes of contractual dispute. Throughout their study, they were able to pinpoint the major causes of dispute, and these include, but are not limited to, poor contract documentation, scope changes and adverse behavioral adaptations (Sinha and Wayal 2007). Poor contract

documentation, one of the causes, is related to design and contract errors, omissions, which may not be identified until construction is well in progress.

According to research done by Cakmak Cakmak (2013), the causes of contractual disputes can be placed into two major categories; design related disputes and contract related disputes. In fact, after the application of the analytical network process to all categories of dispute, it was determined that contract related and design related dispute represent 52 percent relative importance of dispute causes (Cakmak and Cakmak 2013).

It is clearly deduced that interpretations need to be made whenever the contract constituents are found to be ambiguous or in conflict. Not all standard contract conditions offer order-of-precedence clauses that could assist engineers, architects, or owners in making such needed interpretations or clarifications. Contracts that do include such clauses tend to differ, in varying degrees, in the way priorities of documents are addressed. In addition, the extent to which any contract-assigned interpreter may be able to rely on rules - other than that implied by the order-of-precedence clause - such as those used by members of the judicial system during dispute resolution proceedings, is unclear.

1.3 Objective

The purposes of this research are to (a) Identify the contract-assigned participant described in the standard condition of contracts, who is entrusted in making needed interpretations and subsequently issuing warranted clarifications or instructions. Investigate the kind of rules the interpreter could rely on and delineate the boundary of his intervention. (b) Examine the various ways prescribed by standard contract conditions for assigning, or deciding on, the priorities of documents constituting the contract. The research effort will endeavor to

present the contract-assigned interpreter related to the contract administration process, with a framework that aids in coming up with an interpretation, that stands less likely of being challenged. Furthermore, the research primarily aims at finding a model language for prescribing the order of precedence of documents.

1.3 Methodology

The methodology to be followed in this research is expected to involve:

1. Reviewing the literature relevant to;
    a. the defects found in the construction contract documents
    b. contract interpretation rules**;**
2. Summarizing the legal-based interpretation rules and filtering out those that can be safely referred to by the interpreter assigned to the contract without transcending the level of discretion inherited in his/her capacity;
3. Comparing and analyzing the various languages used by different standard forms of construction contracts in addressing interpretation. The standard forms chosen to be analyzed and compared are; FIDC (Fédération Internationale des Ingénieurs-Conseils) , AIA (American Institute of Architects), EJCDC (Engineers Joint Contract Documents Committee) , JCT (Joint Contract Tribunal) , ConsensusDocs, NEC (New Engineering Contract). These standard forms are chosen because the FIDIC, AIA, EJCDC and ConsensusDocs are frequently used by the MENA region and the United States, and JCT and NEC are used by the United Kingdom.

4. Suggesting a model language, which may be used for specifying the priorities of the contract documents, and is extracted by the comparison made under point 3 above and the additional prioritization criteria synthesized from the literature review; and
5. Offering a research summary and a set of recommendations and conclusion.

CHAPTER II

LITERATURE REVIEW

2.1 Preamble

First, we will be defining the components of contract documents, their roles, importance, their integrated nature and various ways of contract comprehension. This will be followed by defining an important source of contract conditions; the Standard Conditions of Contract and stating the extracted advantages. Next, defects in contract documents will be discussed including the various leading factors and the available interpretation principles used in court for defect resolution.

2.2 Construction Contract Documents

The construction documents define the rights, responsibilities and relationships among the parties comprising the contract. Drafting of these documents is usually done by either the owner's or the contractor's entity. The responsibility of drafting these documents depends greatly on the project delivery method used. For example, in the design-bid-build or the so-called owner-build methods of project delivery, the Architecture/Engineer executes the design phases and delivers to the owner the documents according to the latter's agreement with the former. On the other hand, in the design-build project delivery, the Architecture/Engineer is employed by the design-builder, and the design-builder executes both the design and construction (Ashworth et al. 2013).

2.2.1 Contract Components

Construction documents are made up of two parts; the procurement documents and the contract documents. Procurement documents consist of the procurement and contracting requirements and the proposed contract documents(McGraw Hill Professional 2005). These documents are used to solicit pricing in the form of bids or proposals from prospective contractors. This makes them susceptible to change during the bidding process by the pre-contract revisions also known as addenda. Of these procurement documents, the contracting requirements, specifications, contract drawings, and pre-contract revisions become, after signature of the contract, the contract documents (The Construction Specifications Institute 2005).

Contract documents includes five main sections; mainly contracting and project forms; conditions of the contract; revisions, clarifications and modifications; project specifications; and drawings (Bennett 2003). To begin with, contracting and project forms are legal instruments that specify the kind of relationship and obligations between owner and contractor, these legal instruments act as the backbone to the contract documents. The forms also incorporate all other contract documents by reference, in a possible order of precedence.

The second section constitutes the Conditions of the contract, and covers requirements dealing with the quality of the work, cost and time (Ashworth et al. 2013). This section is split into two parts; general conditions and specific conditions. General conditions can be applied to many projects of a certain type, and are also available as standardized documents that are prepared by various professional associations. These conditions regulate the relationships between the parties to the contract, which are subject to the provisions of contract law (Henkin

2005). These regulations are carried along the construction lifecycle, for example the payment process.

The second part of the contract conditions are the "special conditions, variously known as special provisions, supplementary general conditions or particular conditions" (Bennett 2003, p.61) under which the contract drafters modify the provisions of the general conditions when needed to cover project-specific matters. Engineers concerned with amending the general conditions should take legal advice on the amended matter (Henkin 2005).

The third section includes the revisions, addenda and modifications; these occur before and after the signature of the agreement. They may originate from the inquires asked by the contractor or clarifications given by the owner, or may be variations to the well-defined scope or schedule of works, induced by any of the participants to the contract. For example, the owner might change the scope because of inadequate planning at the project definition stage (Keane et al. 2010).

The fourth section incorporates the specifications, which describe specific aspects of the project; its materials, products and methods or performance requirements. Specifications also include provisions for administering and supervising the work, however it may be limited to matters such as inspecting and testing the material (Henkin 2005).

The format used to describe the specifications for the project differ, yet the drafter may be aided by the master format, which divides the specifications to 16 divisions. Each of these divisions contain three sections that describe the general requirements, product and execution for the work required. Division one of the specifications, expand responsibilities written in the contract forms, expand principles discussed in general requirements and cross reference with the supplementary provisions, yet it is governed by these contract forms and contract conditions.

Finally, drawings constitute the final section, and they are scaled and dimensioned graphic depictions of the project structures. They are evolved from the preliminary concept of the employer to execution drawings which shows the quantitative extent and relationships of elements to one another. These drawings are governed by the specifications as it provides more information for the purpose of construction (Bennett 2003).

2.2.2 Factors Influencing Contract Comprehension

According to Mohamad and Madon (2006), among many factors that inhibit the understanding of the contract documents which are presented in figure 2.1 below, the main factor is having a plethora of documents with strictly legal and technical jargon. The panel of experts in the same research agreed that aspects that hinder the understanding could lead to serious contractual problems, and could affect the output of the projects in terms of quality, cost and time. Therefore, to improve the understanding of contract documents, experts suggested factors to be taken into account while preparing the contract documents. One of the important factors with a 93% relative importance is clarity in contract documents (Mohamad and Madon 2006).

Question	Relative Index (RI)
Documents are too thick and too many legal phrases.	0.81
Client do not aware of their requirements	0.76
Never having any training	0.75
Fully delegate to subordinates	0.74
Requirements are not clear and too general	0.74
Language used is difficult to understand.	0.73
Time consuming in understanding the contract.	0.69
Specifications are too stringent and not practical.	0.68
Not familiar with the contract forms used	0.68
Seldom read the documents.	0.68
Never had any experience with the same project	0.66

Figure 2.1 Factors Inhibit Contract Understanding

In addition, the Construction Specifications Institute manual offers four basic concepts to facilitate the understanding of the contract documents. The first concept is that documents should agree with one another as integral parts of a whole, because these documents are interconnected in describing the work. Second, documents should have common terminologies and nomenclature, to provide a solid basis for describing the requirements. Third, documents without variations are inevitable because of the rising complexity of the projects. Therefore, the third concept is that, modifications made to one of the documents should not contradict provisions contained in other documents. Forth, supplementary conditions, which are conditions put forth by the owner, must be carefully coordinated with the general conditions and other documents, including procurement requirements and the various agreements.

2.3 Standard Conditions of Contract

Many of the contract documents have been developed over years by various national and international organizations; these documents are called 'standard' forms and conditions, and are used in both private and public construction projects. (Bennett 2003). This section attempts to provide background information about each standard condition.

Starting off with the American Institute of Architects (AIA), it was founded on February 23rd, 1857, and has grown to more than 83,000 members. Its headquarters is located in Washington, DC, where it continues its goals by offering professional development opportunities and contract documents that are considered the model for the design and construction industry in the United States. AIA has over 100 years of experience in developing and updating contract documents, and more than 100 contracts and forms that cover all phases of the design and

construction process (AIA 2007). Currently, the AIA A201 is the most influential and commonly used construction contract between owner and contractor in the United States (El-adaway et al. 2016).

International Federation of Consulting Engineers (FIDIC), founded in 1913 by three national associations of consulting engineers in Europe, now has 97 member associations from all over the world. The FIDIC has made revisions to the standard forms, in order to attain greater certainty in the intention of the wording or to respond to the needs of the parties. FIDIC is also well known for its work in drafting a standard form of conditions of contract for the construction industry worldwide (FIDIC 2014). In 1999, FIDIC published the new suite of standard contracts, which included the conditions of contract for construction, and is recommended for building and engineering works designed by or on behalf of the employer (FIDIC 1999).

The Joint Contracts Tribunal (JCT) was established in 1930 by the Royal Institute of British Architects (RIBA) and the National Federation of Building Trades Employers (NFBTE). It became a limited liability company, consisting of seven members; the British Property Federation, the Contractors Legal Group Limited, the Local Government Association, the National Specialist Contractors Council, the Royal Institute of British Architects, the Royal Institution of Chartered Surveyors, and the Scottish Building Contract Committee Limited (Ndekugri and Rycroft 2009). JCT has produced standard forms of construction contracts for use by the construction industry. Today JCT provides a larger and more comprehensive range of contract documentation than any other contract-producing body in the United Kingdom construction industry (Corporate.jctltd.co.uk 2017)

The Engineers′ Joint Contract Documents Committee (EJCDC) was founded in1975. It is a joint venture of four organizations of professional engineers and contractors: the American

Council of Engineering Companies (ACEC), the National Society of Professional Engineers (NSPE), the American Society of Civil Engineers (ASCE), and the Associated General Contractors of America (AGC). A fair amount of enhancements and updates were done since 1975, with a main focus on horizontal infrastructure in the United States. EJCDC strives to identify, acknowledge, and fairly allocate risks, using a balanced approach that assigns a specific risk to the party best able to manage and control that risk (EJCDC 2014).

The New Engineering Contract (NEC) is a suite of standard forms of construction contracts published by Thomas Telford Services Ltd. for the Institution of Civil Engineers (ICE). Its main contract and subcontract were first published as consultative editions in January 1991, then the first formal edition was published in 1993. In June 2005, a complete set of NEC3 documents, comprised of twenty-three volumes that cover the NEC's six main procurement options, was developed. It is used for civil engineering works in the UK (Eggleston 2015).

ConsensusDOCS was initially published on September 28th, 2007, and offers more than 100 different design and construction contract documents covering all methods of project delivery. Originally, it was endorsed by 20 organizations then got expanded in 2004 by the Associated General Contractors of America (AGC), for the purpose of generating a consensus set of standard design and construction contracts. Today it is the product of more than 40 leading design and construction industry associations that represent Designers, Owners, Contractors, and Sureties which also stand for the "DOCS" in ConsensusDOCS (Syal and Bora 2016).

Standard conditions of contract provide various advantages, and their benefits extend to affect all parties involved in the contract. To begin with, standard conditions of contract reduce the possibility of misunderstanding, undue compensation, the likelihood of change orders, and

the occurrence of claims or litigation arising out of contractual performance (Bubshait and Almohawis 1994). Second advantage is that its provisions are well known and understood through the repeated use that would result in clear and well-coordinated documents (Bennett 2003). Third advantage is formed from having the conditions drafted by "experts beforehand and away from the heat of the particular project, with the balanced representation of all relevant industry participants, and representing a fair allocation of risk between the contractor and the employer" (Rameezdeen and Rajapakse 2007, p.730). Forth advantage is that they reduce the inefficiencies associated with the repeated drafting and reviewing of contract (Jergeas and Hartman 1994). However, standard conditions are tailored by the drafter, who adds particular conditions to be consistent with their project. By introducing such alterations, the owner may gain an unfair advantage (Laryea and Hughes 2009).

2.4 Contractual Problems

The contract documents are assembled by the Architect/Engineer, a lawyer, or any individual from the client or contractor in house team, depending on the party furnishing the documents and the project delivery method, as previously mentioned in section 2.2

Despite the various attempts at having clear and concise contract documents, some clients continue to produce erroneous contracts, with the belief that construction contractors will react willingly with minimum change orders. Additionally, the willingness of the industry to construct a contract that is completely indisputable and describes concisely the obligations and intentions of both parties is uncommon (Whitticks 2005). Also, according to Posner's research, the marginal cost of writing every statement in the contract exceeds the benefit of including them

(Posner 1998)There is a large amount of contractual problems that lead to misinterpretation. These contractual problems found in literature are summarized in a list:

- When the standard conditions are tailored to meet the project's objective, careless review of the provisions may result in terms that contradict heavily negotiated terms (Sethi et al. 2012)
- During the process of integrating the conditions of contract in the procurement stage, drafters are usually in a hustle to meet the scheduled deadlines, which leads to possible undetected inconsistencies (Whitticks 2005)
- Some consultants fail to understand their responsibilities under the design team, which may include coordination between civil, structural, architectural, mechanical and electrical designs, resulting in errors, omissions and incompleteness in the design and specification (Hall 2000).
- All drawings in the contract documents may have mechanical drafting errors or lack a needed dimension or detail. These arise from human error of the designer and draftsman. Some errors are not only originated from human errors, but from changes occurring as projects undergo the design and construction process. These can be from unforeseeable conditions or from adjustments due to a revision of the owner's needs (Jaffar et al. 2011).
- Another defect in the contract documents is possibly having deficient or insufficient plans, such as missing dimensions, wrong scales, missing details, and many others. Most parties who have worked with plans know that no set of drawings is complete or without error. If the error arises during the construction phase, they try to solve it with their professional experience, but it does not work

all the time because the liability of misinterpreting the actual requirements is high (Jaffar et al. 2011).

- Some omissions in design are deliberately put in the contract documents to have concurrent design and construction. This may lead to many changes, resulting in loss of productivity and delays in project completion (Arain et al. 2006).
- Unclear and ambiguous plans and specifications can cause misinterpretations of the actual requirements of the project, leading to major variations that may eventually affect project completion and quality of the project (Arain et al. 2006).
- Internally inconsistent terms such as contradictions in or between the general conditions, specific conditions, and specifications. Usually, such contradictions result from hastily made tenders (Khekale and Futane 2015).
- Ambiguous terms: Ambiguous terms exist "when the provisions in controversy are fairly susceptible to different interpretations or may have two or more different meanings." (Martorana 2014) Ambiguity is divided into two types: patent, and latent. Patent ambiguity is the kind of ambiguity that is obviously ambiguous, such as having a contract provision in one document and not in the other (Lear and Werts 2007).Also, when the contracts terms are perfectly clear by themselves but they are mutually inconsistent and contradictory. The second type of ambiguity is latent ambiguity, it is when the terms have two different meanings but one party has no reason to be aware of the other party's understanding (Duhl 2009).

- Vague terms use: Vague terms are terms that contain many meanings depending on the context. Some vague terms may or may not matter to the interpretation of the context (Solum 2010).
- Incomplete contracts: These usually occur when parties have not anticipated a situation that might cause a dispute or have anticipated the situation but decided not to include it in the contract (Duhl 2009).
- Inadequate contract clauses interpretation: this would allow the parties to violate the conditions of the contract, such as using insufficient construction material to increase the marginal profit (Al-Hammad 2000).

According to Murray (1979), "owners, contractors, designers, and everyone involved in construction readily recognize and are quick to admit publicly the very obvious fact that a perfect set of contract documents simply does not exist" (Murray 1979, p.19). Conflicts and disputes caused from misinterpretation of the contract documents occur not because the parties assigned are competitors among themselves, but because they have differences in interpretations and each party protects its own interests and financial gain (Khekale and Futane 2015).

2.5 Contract Interpretation

Contract scholars have long recognized that there is an important difference between construction rules and interpretation rules. Contract interpretation identifies the meaning of words or actions, when on the other hand; contract construction determines the legal effect of such words (Klass 2017). The main goal of contract interpretation is to resolve any contractual conflicts and issues. Some contracts contain clauses such as the "priority of documents" clause to resolve conflicts that may arise between provisions. If the conflict remains unresolved,

interpretation rules by court will apply, and these interpretation rules are governed by the principle of objectively determining the intention of the parties. (Martin and Morency 2015).

Mclauchlan's article states Lord Hoffmann's well-known guiding principle of interpretation, which involves the process of determining the meaning of a document with the background knowledge of a reasonable person at the time of the contract. At the same time, this principle uses colloquial words to describe jargon, unless the contract specified otherwise or if the terms have a technical or trade meaning (McLauchlan 2013).

Some courts include a jury when interpreting written contracts, and the inclusion of such juries depends on whether the issue needing interpretation was a matter of fact or a matter of law. According to Whitford (2001), "the most important standard for distinguishing questions of fact from questions of law is the general/particular distinction." (Whitford 2001, p.932). For example, when determining expected damages for a contract breach, it is a kind of assessment based on fact, rather than law. Another example is when interpreting the ambiguity against the party responsible for drafting this ambiguity, this relative fault is determined based on more general propositions, and should be considered as a law question (Whitford 2001).

Juries frequently weigh in on many cases involving written contracts, and their decision is normally the one taken into account, whatever it may be. The need for juries is especially important in the case where no tangible evidence is present, and decisions need to be made using oral testimony evaluation, or in cases where juries are mandatory, such as fraud (Whitford 2001).

2.6 Rules of Interpretation

In order to facilitate the understanding of contract interpretation some background information about the rules of interpretation will be covered in this section. According to

Orsinger (2007), “views on how courts should interpret contracts vary widely. At the simplest level, the views have been contrasted as being either classical or modern, static or dynamic, textualist or contextualist, objective or subjective, literal or purposive, standardized or individualized, binary or multi-faceted.”(Orsinger et al. 2007). In Orsinger’s studies, he describes old and new approaches to interpreting contracts, and then describes the rules of contract interpretation that are generally recognized. These rules are going to be mentioned below with additional information from other articles.

The main task of any court is to present and enforce the rules and regulations agreed upon in a contract. The court’s primary concern is to try to solve any dispute by clarifying the intended meaning of the involved parties in the contract, and to reconcile the different parties to reach an agreement. However, often, the different parties’ intentions are vague, and thus require further and more intense studies by the court.

2.6.1 When Considering Only the Agreement Itself

When courts limit themselves to the language of the contract, they use the rules below to interpret the dispute concerning the defect in the contract.

a. Four Corners Rule

Courts are bound by the four corners of the signed written contracts, in other words they are limited to the use of evidence mentioned in the already approved contract; signed by the two consenting parties (1999). This was thought to have advantages including the fact that the it facilitates the procedure of dispute resolution by concentrating on the contract in hand. Additionally, it is also found to be quicker than other methods, inexpensive and has resulted in definitive outcomes (Orsinger et al. 2007).

b. Multiple Contemporaneous Documents Construed as One

Another principle used by court is looking at multiple contemporaneous documents as construed as one. Orsinger mentioned that “where several instruments, executed contemporaneously or at different times, pertain to the same transaction, they will be read together although they do not expressly refer to each other.” (Orsinger et al. 2007, p.27) This was also supported In Thomas and Ellis’ book by referring to the multiple contemporaneous documents as separate contracts. Reinforcing their argument by stating the general rule of law that says, "in the absence of anything to indicate a contrary intention, instruments executed at the same time, by the same contracting parties, for the same purpose, and in the course of the same transaction will be construed together, since they are in the eyes of the law one contract."(Thomas and Ellis Jr 2007, p21)

c. Clear Mistakes

Another principle that is used in the case of the presence of clearly inconsistent terms is the correction of Clear Mistakes. According to Orsinger, “where it is clear that a word has been written into an instrument inadvertently, and it is clearly inconsistent with, and repugnant to the meaning of the parties, as shown by the whole instrument, it will be treated as surplusage and rejected altogether.” (Orsinger et al. 2007, p.27)

d. Scrivener’s Error/ Reformation

When the contract contains an error that is clearly a drafting error, it would allow a proper ground for the written contract to be reformed. Additionally, for reformation to apply there must be “clear, cogent and convincing evidence‖ of (1) a preexisting agreement between

[all of the parties at issue] in which the parties agreed that a lien would be placed on the property, and (2) a scrivener‘s mistake in drafting the agreement, and (3) that the mistake was mutual as between the grantors and the grantees.”(Lear and Werts 2007, p2-39)

Other authors disagree with the complete reformation of the contract by emphasizing on the importance of the right of freedom to contract. In Thomas and Ellis’ book they oppose the ability of the court to modify or alter contracts that were built upon the agreement of both parties, even if the content seemed to be unfair to one party (Thomas and Ellis Jr 2007).

e. Plain Meaning Rule

A fundamental principle in the interpretation of contracts is the Plain Meaning Rule. This rule emphasizes on the use of the “plain” meaning of words used in contracts in cases where the interpretation can differ when read by one person or the other. In other words, the most “popular” or most grammatically correct meaning should be used. Nonetheless, in the cases where the drafting terms are considered technical or are terms of art or if the parties specify the definition of the term used then these should be interpreted as is (Glasser and Rowley 1997).

f. Construe Contract as a Whole

Looking at the contract as a whole stresses on the fact that the documents constituting the contract should be looked upon as one entity. Parts of the contract should not be taken out of context and analyzed in isolation. These documents were drafted to deliver the actual intent of the parties, hence separating the terms used will defeat the purpose of the agreed conditions. Ultimately, this principle will result in creating harmony without neglecting any of the written provisions (Kelleher Jr et al. 2014).

g. Noscitur a Sociis (Take Words in Their Immediate Context)

This rule indicates that a word may be controlled by the text associated with it (Thomas and Ellis Jr 2007). This rule is mainly used to prevent giving a word a meaning that would be inconsistent with the text surrounding it. (Orsinger et al. 2007).

h. Expressio Unius est Exclusio Alterius (Exclude Similar Things Not specified)

Sometimes when a specific term is expanded upon, the expansion by itself limits the items that can be attributed to the term expanded. This has been explained in different sources under the reasoning that "the expression of one thing is the exclusion of another thing." Especially since if the enumeration of specific things is not followed by a more general term that would allow the expansion of the clarified requirement (Orsinger et al. 2007).

This principle has been made clear by Lear and Werts by giving the example of a case encountered in the Supreme Court of Missouri. The court had to "determine whether an employee subject to an employment contract could be fired for drinking on the job. The employment contract contained a specific clause governing when the company had cause to terminate an employee: ―[An employee] may be discharged from the service of the Company for good and sufficient causes.―These causes shall include intemperance, incompetency, habitual neglect of duty, gross violation of rules or orders, dishonesty or insubordination…The Court noted that, because the list of causes for termination were expressly listed and did not include any ― "catch-all language", the employer may be limited to only those causes for termination listed. The Court went on to hold, however, that the employer did have a specific rule prohibiting drinking on the job. Because one of the express grounds for termination was the ―gross violation of rules, the employer did have proper grounds for terminating the employee." (Lear and Werts 2007, p.2-19)

i. Ejusden Generis (Limit Generalities to Things of the Same Genre as Those Specified)

According to Orsinger, "when words of a general nature are used in connection with the designation of particular objects or classes of persons or things, the meaning of the general words will be restricted to the particular designation." (Orsinger et al. 2007, p.30). In other words, the rule is to determine the scope of more general words to specifically fit particular definitions and situations.

j. Specific Terms Prevail Over General Terms.

According to Smith and Hancook (2014), "if a specific provision of an agreement conflicts with a general provision, the specific controls over the general, or qualifies the meaning of the general provision, unless the parties clearly manifest a contrary intent." (Kelleher Jr et al. 2014, p.15). This rule organizes what takes prevalence in cases of uncertainty. When a specific part of the contract contradicts what general provisions entail, the specific part takes priority. This means that general provisions are amendable in contract should a more specific clause adjust them.

k. Earlier Terms Prevail Over Later Terms

When the clauses of the same document are in conflict and cannot be reconciled, then terms stated earlier in the document are favored over terms stated later (Rowley 1999).

l. Handwritten Over Typed and Typed Over Preprinted

During the course of project planning, occasionally parties may hastily modify preprinted terms in order to accommodate some changes necessary for the project's objective. These

changes are often preprinted, typewritten, and handwritten terms that might contradict each other. A priority needs to be established to foresee any conflicts that can be encountered. According to Smith and Hancock (2014), "handwritten provisions are favored over typed, and typed provisions are favored over pre-printed provisions, unless the parties clearly manifest a contrary intent" (Kelleher Jr et al. 2014, p.16).

m. Words Prevail Over Numbers or Symbols.

It is more frequent for drafters to make mistakes in drafting figures than words, therefore when the words and figures in conflict, words used to express the same content as the figures will govern (Thomas and Ellis Jr 2007).

n. Utilitarian Standpoint.

A productive point of view should be taken into consideration when construing the contract, and effort should be given to avoid unreasonable, inequitable and oppressive interpretation (Orsinger et al. 2007). In Thomas and Ellis' book, they state this rule as one of the standards of interpretation and is referred to as equity of interpretation, where it requires that the interpretation made by the court be equitable to both parties.

o. Construction must be Reasonable

According to Smith and Hancook's practical guidebook, this rule overrides all other rules of contract interpretation, and in Thomas and Ellis' book, it is one of the standard rules of interpretation. The rule specifies that the interpretation of a document is given "by determining how the "reasonable person" would have used and understood its language, considering the

circumstances surrounding and keeping in mind the purposes intended to be accomplished by the parties when entering into the contract" (Orsinger et al. 2007).

p. Use Rules of Grammar.

According to Orsinger, "courts are required to follow elemental rules of grammar for a reasonable application of the legal rules of construction." (Orsinger et al. 2007)

q. Contra Proferentem (Construe against the Drafter)

When an ambiguity in the contract cannot be resolved by any of the other rules of interpretation, then the words are interpreted against the drafter. This rule is only used as a last resort, or as a tiebreaker (Hall and Feder 2012).. According to Smith and Hancook, "this rule of contract interpretation applies unless the non-drafting party knew of or should have known of the ambiguity and several requirements must be met for this principle to apply: (1) there must truly be an ambiguity - that is, the contract must have at least two reasonable interpretation. A non-drafting party's interpretation need not be the only reasonable interpretation for this principle to apply. (2) One of the two parties must have drafted or chosen the ambiguous contract language. (3) The non-drafting party must demonstrate that it relied on its interpretation" (Kelleher Jr et al. 2014, p.20).

r. Avoid Rendering Clauses as Meaningless

When an interpretation is given to a contract, then courts should examine and consider the entire instrument and every effort should be made to extract a definite meaning (Hall and Feder 2012).. Also, "if a contract or contractual provision is susceptible to two reasonable

constructions, one of which would render it meaningful and the other not, the construction making the contract or provision meaningful must prevail" (Glasser and Rowley 1997).

s. Validity Preferred Over Invalidity

It is one of the standard rules of interpretation that, if a contract or contractual provision is susceptible to two reasonable constructions, one of which would render it valid and the other invalid, the construction making the contract or provision valid must prevail (Thomas and Ellis Jr 2007).

t. Presumption Against Illegality

It is one of the standard rules of interpretation (Thomas and Ellis Jr 2007) that "if a contract or contractual provision is susceptible to two reasonable constructions, one of which comports with statutory law, regulation, or common law, and one of which does not, the court should construe the contract or contractual provision in such a way as to make it legal" (Glasser and Rowley 1997, p.676).

u. Avoid Implied Terms

According to Orsinger (2007), "when parties reduce their agreements to writing, the written instrument is presumed to embody their entire contract, and the court should not read into the instrument additional provisions unless this be necessary in order to effectuate the intention of the parties as disclosed by the contract as a whole." (Orsinger et al. 2007, p.32). Examples of this type of case include "implying that a contract which sets no time for performance must be performed within a "reasonable" time, considering the condition and circumstances of the

parties, and may not be terminated without reasonable notice to the party whose performance is subject to the "reasonable time" requirement.” “Implied terms are also permitted when they arise by operation of law, such as the implied warranty of habitability the implied duty of good faith and fair dealing” (Rowley 1999, p.133).

2.6.2 Literalism-Contextualism Dichotomy

One of the dichotomies of contract interpretation is having a literal interpretation or a contextual interpretation, also known as literalism-contextualism dichotomy. Contextual interpretation suggests that to be able to render a reasonable interpretation of the words, the court should consider extrinsic evidence even if there was no ambiguity. Literal interpretation requires the court to make their interpretation by being restricted to the four-corners of the contract. It rests on the plain meaning of the contract and usage of parol evidence rule that allows the use of extrinsic evidence only as a last resort and never to contradict a term in the written contract.

To be able to understand the difference between contextual and textual interpretation, a further explanation about the role of extrinsic evidence, fully, partial, and unintegrated contract, will be given, along with hard and soft parol evidence rule. These will be explained in the following sections 2.6.3, 2.6.4 and 2.6.5

2.6.3 Fully Integrated, Partially Integrated, and Integrated

a. Integrated Agreements

According to the Second Restatement of contracts, “an integrated agreement is a writing or writings constituting a final expression of one or more terms of an agreement.”(Orsinger et al. 2007, p.15) When the parties have reduced their agreement in writing, it indicates that the

writing is complete and reasonably specific, unless it is established by other evidence that the writing did not constitute a final expression. The purpose is to provide reliable evidence in the interest of certainty and security of interpretation transactions. The determination of the contract's integration is done by the court (American Law Institute 1981)

b. Partially Integrated Agreements

When it comes to agreements, "an agreement is not completely integrated if the writing omits a consistent additional agreed term"(American Law Institute 1981). Basically a partially integrated agreement is one that does not include all the terms agreed upon between the parties (Glasser and Rowley 1997).

c. Completely/ Fully Agreement

A fully or complete integrated contract is a final and complete expression of all the terms agreed upon between the parties (Glasser and Rowley 1997). According to the Second Restatement, an integrated agreement is a binding agreement which discharges prior agreements that are inconsistent with the project's scope.

d. Entire Agreement Clause/ Merger Clause

The entire agreement clause usually is similar to the following:

"The Agreement and the agreements and documents referred to herein (including the Exhibits and Schedules hereto) contain the entire agreement and under-standing of the parties hereto with respect to the subject matter hereof and supersede all prior agreements and understandings, whether written or oral, relating to the subject matter hereof. There are no other

agreements [representations, or warranties] be-tween or among the parties other than those set forth in this Agreement and the agreements and documents referred to herein." (Sethi et al. 2012).

The entire agreement clause has a significant impact on a number of contractual issues, and it: (a) helps pursuing the parties' intention in constructing a final expression of their agreement, (b) invokes the protection of the parol evidence rule, which prevents the parties from claiming that evidence extrinsic to the contract should be considered in its interpretation (c) limits the doubt of having some collateral contract or implied term arising from the negotiations between the parties, which does not appear in the contract (d) prevents the court from falling into the allegations brought from the oral terms. However, such clause does not prevent the court completely from examining all evidence especially when the contract is partially integrated (McMeel 2008).

2.6.4 Role of the Extrinsic Evidence

After thorough reading of literature, it was brought to our attention that there is no general rule used on all cases about when the extrinsic evidence is admissible. Some courts do not allow any extrinsic evidence to be admitted unless the agreement was proven to be unintegrated or ambiguous. The un-integration or ambiguity is proven by the failure of finding the intent of the parties or a definite interpretation when interpreting the agreement itself (Rowley 1999). On the other hand, some common and statutory laws allow the extrinsic evidence to be used for the purpose of determining whether the agreement is integrated or ambiguous. (American Law Institute 1981)

Extrinsic evidence are evidence outside the written agreement, such as the surrounding circumstances of contract formation, testimony of an individual, prior oral agreements, prior written agreements, parties' subsequent conduct, or oral collateral agreement. This kind of evidence can either be offered to explain the intent of the contradiction parties at the time the contract was executed, or offered to add to, subtract from, or otherwise modify the written agreement. Extrinsic evidence is also called parol evidence given from the parol evidence rule, this rule usually prohibits the admissibility of evidence that may modify or vary the written agreement. (Rowley 1999)

2.6.5 Parol Evidence Rule

According to Kniffin, parol evidence rule typically state; "[E]xtrinsic or parol evidence which tends to contradict, vary, add to, or subtract from the terms of a written contract must be excluded." (Kniffin 2009,p.101) The purpose of this rule is to allow parties to rely on enforcing the written agreement, because even the most carefully considered written documents could be negated by the smallest proof that is not written in the agreement itself. However, contract law recognizes few exceptions to the parol evidence rule that are carefully and narrowly crafted to allow courts to use parol or extrinsic evidence.

Parol evidence rule does not prohibit the use of evidence that is offered to explain a written agreement. In other words, "parol evidence is admissible to show the meaning which the parties themselves attached to words they themselves employed in their own written contract" (Rowley 1999). Additionally, the rule excludes only evidence of transactions occurring before or contemporaneous with the written agreement; it does not exclude evidence of subsequent transactions (Lear and Werts 2007).

The general applicability of the rule is determined by the following circumstances; (1) If the agreement was partially integrated but unambiguous, then parol evidence may be admitted to add, clarify, explain, or give meaning to the writing but it cannot vary or contradict integrated terms (Lear and Werts 2007). (2) If the agreement was fully integrated but ambiguous, parol evidence may be admitted to clear the ambiguous meaning but not to add any terms (Rowley 1999). (3) If the agreement was unintegrated then parol evidence rule does not apply (Kniffin 2009).

According to the Second Restatement of contracts, parol evidence such as prior or contemporaneous agreements and negotiations are admissible to establish "(a) that the writing is or is not an integrated agreement; (b) that the integrated agreement, if any, is completely or partially integrated; (c) the meaning of the writing, whether or not integrated; (d) illegality, fraud, duress, mistake, lack of consideration, or other invalidating cause; (e) ground for granting or denying rescission, reformation, specific performance, or other remedy"(American Law Institute 1981)

According to Posner's research, the parol evidence rule is split into two; hard-per, where courts generally exclude extrinsic evidence and rely entirely on the writing, and soft-per, where the courts give weight to both the writing and to the extrinsic evidence. To determine whether hard-per is globally superior to soft-per, they introduce an argument to measure the outcome of all the promises of the contract. For hard-per they measure the probability of enforcement by courts if written, multiplied by the value of that promise, minus the transaction cost of adding it to writing. On the other hand, soft-per is measured by the probability of enforcement if unwritten, multiplied by the value of that promise. Next, they sum up the relevant amount for each promise, and, if the sum is higher under hard-per than under-soft per, then hard-per is

globally superior. However, the transaction cost and judicial competence of enforcement are highly undetermined which makes the argument complicated to give a definite outcome. (Posner 1998)

CHAPTER III

CONTRACT DOCUMENTS' DEFECTS AND THEIR RESOLUTION

3.1 Preamble

Chapter three will cover initially the different documents forming the contracts and the defects that can be encountered. Followed by the various participants providing the solutions for the defects and their impact on the parties involved. This process was extracted from the six standard conditions of contract, especially since they are viewed as unbiased and almost cover the full range of standard contract conditions used almost internationally.

3.2 Documents Forming the Contract

The contract is constituted of a number of documents, which include basic information about the project forms, conditions of contract, the project material, method of performance and finally drawings (Ashworth et al. 2013). These documents are represented differently among the standard conditions of contract. Table 3.1 represents a summary of how the documents are described in each standard conditions of contract.

The contract documents purpose is to serve the project, as it was specifically stated in the AIA § 1.2.1 that "The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor." Likewise, in EJCDC paragraph 3.01.B states that "…the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents." (EJCDC

2013) Furthermore, if there was any information not explicitly stated in the contract documents, the AIA requires the contractor to reasonably infer from them by stating that the "performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results."(AIA 2007)

Table 3. 1. Documents Constituting the Contract

Standard conditions	Included Documents
AIA Document A201 – 2007	"Agreement, Conditions of contract (General, Supplementary and other Conditions), Drawing, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract"
FIDIC Conditions of Contract for Construction – 1999	"Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance"
JCT SBC/Q – 2011	"Contract Drawings, the Contract Bills, the Agreement and Contract Conditions, together with (where applicable) the Employer's Requirements, the Contractor's Proposals and the Contractor Design Portion Analysis"
EJCDC C 700 – 2013	"Those items so designated in the Agreement, and which together comprise the Contract"
NEC3 – 2013	Agreement, Contract Data, Contractor's Pricing document, Works information, Site information
ConsensusDocs 200 – 2011, revised 2017	"Agreement, Drawings, Specifications, Addenda issued and acknowledged before execution of this Agreement, information furnished by Owner pursuant to testing the material; and Change Orders, Interim Directives, and amendments issued in accordance with this Agreement"

The documents represented in each standard condition differ slightly from each other; the major differences are: (1) The AIA, which excludes the Contractor's bid or proposal, unless it is specifically enumerated in the agreement to do otherwise. (2) The JCT, which includes two priced documents, one of which "the Contractor has supplied the Employer with a full priced copy of bills of quantities, which for identification has been signed or initialed by or on behalf of each Party"(JCT 2011), called Contract Bills. The other priced document is also supplied by the contractor to the employer which is "an analysis by the portion of the Contract Sum relating to the Contractor's Design Portions"(JCT 2011) called CDP analysis. (3) The EJCDC does not specify a list of documents but leaves it up to the drafter for a specific project to decide on the constituents. (4) The NEC refers to the conditions of contract as the Contract Data which is produced by both the employer and contractor, and the bill of quantities is referred to as the Contractor's Pricing document. In addition, the information about drawings and specifications are called Works Information, defined as "information which either; specifies and describes the works or states any constrains on how the Contractor Provides the Works and is either in the documents which the Contract Data states it is in or in an instruction given in accordance with this contract." (NEC 2013) Another major difference in NEC is the addition of the site information, defined as "information which describes the Site and its surroundings and is in the documents which the Contract Data states it is in."(NEC 2013)

On the other hand, some documents in the contracts are represented similarly by some standard conditions of contract. Such as, the Agreement is mentioned in all six standard conditions, the conditions of the contract are referred to as Contract Conditions by three standards (AIA, FIDIC and JCT). In addition, AIA, FIDIC, JCT and ConsensusDocs refer to the

illustrations as Drawings. Finally, the AIA, FIDIC and ConsensusDocs refer to the information about the material and method of performance as Specifications.

3.3 Types of Defects in Contract Documents

Contract documents are probable to defects occurring from human drafting errors, insufficient details or from project modifications during the project execution (Jaffar et al. 2011). As per Diekmann and Girard's research contractual issues cause a significant portion of disputes in many projects (Diekmann and Girard 1995).

Therefore, our research analysis started with determining the types of defects in the contract documents, which are described in the six standard conditions of contract. These describtions are encountered in different provisions. In the AIA, EJCDC and ConsensusDocs they are described under the section or paragraph comprising of the contractor's responsibility to review the documents and field conditions. On the other hand, in FIDIC these defects are described when they are encountered by the contractor or any other participant to the project. Also, NEC describes the defect when specifying the responsibility by both the project manager and the contractor.

In JCT, different clauses are described in detail touching upon errors, discrepancies and divergences. First, in Errors in preparation of Contract bills and employer's requirements in clause 2.14.1 " If in the Contract Bills, or such addendum bill as is referred to in clause 2.13.1, there is any unstated departure from the method of preparation refered to in that clause or any error in description or in quantity or any omission of items (including any error in or omission of information in any item which is the subject of a Provisional Sum for defined work), the departure , error or omission shall not vitiate this Contract but shall be corrected."(JCT 2011) In

addition, in clause 2.14.2 “If an inadequacy is found in any design in the Employer’s Requirements in relation to which the Contractor under clause 2.13.2 is not responsible for verifying its adequacy, then, if or to the extent that the inadequacy is not dealt with in the Contractor’s Proposal, the Employer’s Requirements shall be altered or modified accordingly.” (JCT 2011)In clause 2.14.4 “Any error in description or in quantity in the Contractor’s Proposals or in the CDP Analysis or any error consisting of an omission of items from them shall be corrected.”(JCT 2011) Second, with respect to Discrepancies they are encountered in the CDP documents or Employer’s Requirements. Finally, with respect to Divergences from Statutory Requirements, Clause 2.17.1 states that “If the Contractor or Architect/ Contract Administrator becomes aware of any divergences between the Statutory Requirements and any of the documents referred to in clause 2.15, he shall immediately give the other notice specifying the divergence…” (JCT 2011)

Table 3.2 summarizes the type of defects described in each standard condition of contract and states the provision in which each is located in.

Table 3. 2. Defects Described in the Standard Conditions

Standard conditions	Clause/Article/ Paragraph	Contract documents defect descriptions
AIA Document A201 – 2007	§ 3.2.2	"…, the Contractor shall promptly report to the Architect any **errors**, **inconsistencies** or **omissions** discovered…**"**
	§ 3.2.3	"…the Contractor shall promptly report to the Architect any **nonconformity** discovered by or made known to the Contractor…"
FIDIC Conditions of Contract for Construction – 1999	Clause 1.5	"If an **ambiguity** or **discrepancy** is found in the documents…"
	Clause 1.5 commentary*	"…to resolve apparent **inconsistencies** or **contradictions**, in cases where the same subject-matter is covered several times…"
JCT SBC/Q – 2011	Clause 2.15	"If the Contractor becomes aware of any such **departure**, **error**, **omission** or **inadequacy** as is referred to in clause 2.14 or any other **discrepancy** or **divergence** in or between any of the following documents…"
EJCDC C 700 – 2013	Paragraph 3.03	"Contractor shall promptly report in writing to Engineer any **conflict**, **error**, **ambiguity**, or **discrepancy** that Contractor discovers…"
NEC3 – 2013	Clause 17.1	"The Project Manager or the Contractor notifies the other as soon as either becomes aware of an **ambiguity** or **inconsistency** in or between the documents…"
ConsensusDocs 200 – 2011, revised 2017	§ 3.3.2	"Should Constructor discover any **errors**, **omissions**, or **inconsistencies** in the Contract Documents, Constructor shall promptly report them to Owner…"
	§ 14.2.2	"In any case of **omissions** or **errors** in figures, drawings, or specifications, Constructor shall…"
	§ 14.3	"In case of any **inconsistency**, **conflict**, or **ambiguity** among the Contract Documents…"

As noted in table 3.2, in all the Standard Conditions of Contract except the NEC and FIDIC, the contractor seems to play a more important role in reporting these kinds of defects. Although the contractor is not expected to professionally review the architect's design, he is liable in case he fails to report any defect. On the other hand, in the NEC, they allow other players such as the project manager or the Contractor to also be aware and discover such defects.

The standard conditions of contract list eleven different defects; each of them has a particular meaning and appears in two different situations. The first situation is when the same subject-matter is covered several times in different parts of the contract. The kinds of defects that appear in this situation are: (1) Inconsistency, which occurs when two mutually exclusive things occur at the same time causing lack of harmony. (2) Discrepancy, which occurs when there is lack of compatibility or similarity between two or more facts. (3) Conflicts, which occurs when one thing negates the other. (4) Departure, which occurs when a document deviates from the standard or norm (5) Divergence, which occurs when there is a difference between two facts or opinions, it is also the act of moving away in different direction from a common point. (6) Nonconformity, which occurs when a document does not act in conformity with the generally accepted practices and law.

The second situation is when a stand-alone requirement is defective. These defects are; (1) Ambiguity, occurs when a word creates doubt or when something has more than one possible meaning. (2) Error, which occurs when a part of a statement is not correct, (3) Omission, which occurs when a part of a requirement is missing or a situation occurs that is not accounted for, (4) Inadequacy, when there is a lack of sufficient quantity or quality of information. Table 3.3 summarizes the situation each defect occurs in, along with the number of times they were described in the six standard condition of contract.

Table 3. 3. The Location and Frequency of the Defect

Defect locality	Defect description	Frequency
One document	Ambiguity	4
	Error	4
	Omission	3
	Inadequacy	1
Two or more documents	Inconsistency	4
	Discrepancy	3
	Conflict	2
	Contradiction	1
	Departure	1
	Divergence	1
	Nonconformity	1

Despite the two situations mentioned above, the defects were filtered by some standard conditions differently. In AIA; Conflicts and Discrepancies are considered to be defects that occur between or among or within contract documents. In ConsensusDocs; they specify that Errors and Omissions occur in Drawings and Specifications whereas, Conflicts occur between the contract documents. In EJCDC; Conflicts, Errors, Ambiguities and Discrepancies occur within or between the contract documents. In NEC; Ambiguity and Inconsistency occur in or between the contract documents.

3.4 Approaches Used to Solve these Defects

In the standard conditions of contract there are approaches used to resolve different kinds of defects. These pave the pathway for guidelines which are given to the involved subject; the participant. These rules and guidelines will be mentioned in chapter 5, our focus in the following sub-sections is on the participant and the type of resolution to be made.

3.3.1 Participant Involved

The participants involved could be either the engineer, architect, contract administrator, project manager or the owner depending on the standard condition of contract. When the contractor becomes aware of any of the mentioned defects he is to immediately give notice to the participant responsible for providing a solution. These participants are given the responsibility to clarify the contractor's scope of work or the requested requirements depending on which section needs rectification based on the defect encountered. These participants are expected to have the knowledge that would better serve the project.

Each of the six standard conditions of contract assigns the responsibility of rectifying the defect to a different participant. Table 3.4 summarizes them.

Table 3. 4. Participants Assigned to Render Judgment for the Encountered Defect

Standard Conditions	Participant	Clause/Article/ Paragraph	Description
AIA Document A201 – 2007	Architect	§ 4.1.1	"…lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located."
		§ 4.2.1	"The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate For Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents."
FIDIC Conditions of Contract for Construction – 1999	Engineer	Sub-clause 1.1.2.4	"…the person appointed by the Employer to act as the Engineer for the purposes of the Contract…"
		Sub-clause 1.1.2.6	"Employer's Personnel means the Engineer…"
JCT SBC/Q – 2011	Architect/ Contract Administrator	Footnote to clause 3.3	"To avoid any confusion between the quite distinct roles of the Architect/Contact Administrator and the Quantity Surveyor on the one hand and that of the Employer's Representative on the other, neither the Architect/ Contract Administrator or the Quantity Surveyor should be adopted as the Employer's representative."
EJCDC C 700 – 2013	Engineer*	Paragraph 1.01.A.20	"The individual or entity named as such in the Agreement."
		Paragraph 10.01.A	"Engineer will be Owner's representative during the construction period."
NEC3 – 2013	Project Manager	Hughes, 2016	"The Project Manager is appointed by the Employer and manages the contract on his behalf." "The Engineering and Construction Contract separates the role of design from that of managing the project and administering the contract."
ConsensusDocs 200 – 2011, revised 2017	Owner	Paragraph 2.4.19	"Owner is the person or entity identified in ARTICLE 1 [Agreement]"
		Paragraph 2.3	"Owner, through its Design Professional, shall provide all architectural and engineering design services necessary for the completion of the Work…"

* Paragraph3.04.C: If the submitted matter in question does not involve: "(1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation."

Subsequently, each participant should be identified in terms of work responsibility and individual role in rectifying defects as per the standard condition of contract. The architect mentioned in AIA section 4.2.11 Commentary "…has prepared the drawings and specifications, has participated in preparation of the other contract documents, and is actively engaged in administering the construction contract, the architect is uniquely qualified to interpret the requirements of the contract."(AIA 2007) Similarly, in JCT Architect/ Contract Administrator is involved in preparing the drawing and specifications required for the contract execution also is responsible to administer the contract. However, the Architect in AIA has the authority to act on behalf of the owner as owner representative but in JCT the architect is not appointed as the employer's representative keeping in mind the potential conflict between being an owner representative and the obligation to act in a fair and professional manner in administrating the contract.

In EJCDC and FIDIC, the engineer is a person appointed by the employer to act as the engineer for the purposes of the contract. He is also the employer's personnel who can be appointed as the owner's representative, who has duties, responsibilities and limitations of authority that is set forth in the contract documents. The engineer's responsibilities include ensuring the quality of the work and rendering decisions regarding the requirements of the contract documents. In addition, in FIDIC, either of which the Project Manager or the Architect is allowed to be in role of the Engineer, which specifies that the Engineer may not be the individual responsible for providing design. However, the Engineer in EJCDC is obliged not to show any partiality to the owner and Contractor.

Additionally, the project manager in NEC is an individual appointed by the employer from his own staff or an external consultant, who manages the contract on his behalf

disregarding impartiality. The project manager should have the necessary knowledge, skills and experience to carry out tasks, which include acceptance of designs and programs, certifying payments and dealing with compensation events. Finally, in ConsensusDocs the owner is an individual or entity identified in the agreement. The owner provides the contract documents to the contractor and fulfils the responsibilities assigned in the contract with reasonable detail and timely manner.

The main responsibility given to these participants is to administer the contract, by either being employed by the employer and assigned as the employer's personnel or being the owner himself. Some of these participants are characterized as the people who were involved in providing the design such as in the AIA, JCT, EJCDC and ConsensusDocs. Whereas in NEC, the participant's role is separated from the design role, also in FIDIC it does not state explicitly the assignment of the design role which gives them the availability of being the design professional.

3.3.2 Type of Resolution

The solutions of the defects are supplied to the contractor as an instruction, clarification, decision or as a variation. These types of solutions have an effect that the contractor should comply or obey or abide by.

In AIA, section 4.2.14 requires the architect to review and respond to the contractor's notices or requests for information within the time limits agreed upon or with reasonable promptness. This section also specifies that "If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information." (AIA 2007) The response given is explained under section 3.2.4 as a clarification or instruction.

In FIDIC, clause 1.5 empowers the engineer to issue any necessary clarification or instruction, if there was any ambiguity or discrepancy within a particular contract document.

It has been implied in both the AIA and FIDIC, that the participant needs to be able to interpret the contract documents in order to give a clarification or instruction.

In JCT, a number of clauses addressed the type of resolution to be given. First, in relation to clauses 2.14.1 and 2.14.2, clause 2.14.3 specifies that any correction, alteration or modification to the employer's requirements shall be treated as a variation. Second, in clause 2.15 when the contractor becomes aware of any departure, error, omission or inadequacy or any other discrepancy or divergence he shall immediately give notice with appropriate details to the Architect/ Contract Administrator, who shall issue instructions in that regard. Third, "When the discrepancy is within or between the [Contractor's Design Portion Documents] other than the Employer's requirements, the contractor shall send with his notice, or as soon thereafter as is reasonably practicable, a statement setting out his proposed amendments to remove it. The Architect/ Contract Administrator shall not be obliged to issue instructions until he receives that statement, but, when issued, the contractor shall comply with those instructions and, to the extent that they relate to the removal of that discrepancy or divergence, there shall be no addition to the contract sum." (JCT 2011) Finally, when discrepancies are within the employer's requirements and they are not dealt with in the in the contractor's proposal then the employer is responsible for the cost of necessary variation. All variations required shall be an amount agreed by the employer and the contractor or an amount valued by the quantity surveyor, subject to clause 5.2

In EJCDC, the paragraphs that mention the Engineer to give a clarification or interpretation are several. They first mention them under paragraph 3.01.E which describes the intent of the documents. Then, under paragraph 3.03 which describes the process needed to

report and resolve these discrepancies and if they were no design related issues “then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation” under paragraph 3.04.

In NEC, the project manager and the contractor are both given the responsibility to report such ambiguity or inconsistency as a notice, so that the project manager is able to give an instruction resolving them.

In ConsensusDocs, the responsibility of the owner to resolve such defects are given under two sections; Section 3.3 which specifies the owner to promptly inform the contractor what action is to be made when the contractor encounters such defect during his review of the documents. Section 14.2 specifies the owner’s responsibility in interpreting the contract documents. Table 3.5 summarizes what type of action is required by the participant in each standard condition of contract.

Table 3. 5. Resolution Given by the Participant

Standard conditions	Participant	Type of resolution	
		Clause/Article/ Paragraph	Description
AIA Document A201 – 2007	Architect	§ 3.2.4	"…**clarifications** or **instructions** the Architect issues in response to the Contractor's notices or requests for information…"
		§ 4.2.11	"The Architect will **interpret** and **decide** matters concerning performance under, and requirements of, the Contract Documents…"
FIDIC Conditions of Contract for Construction – 1999	Engineer	Clause 1.5	"…the Engineer shall issue any necessary **clarification** or **instruction**." "For the purposes of **interpretation**, the priority of the documents shall be in accordance with the following…"
JCT SBC/Q – 2011	Architect/ Contract Administrator	Clause 2.14.1	"Where the description of a Provisional Sum for defined work does not provide the information required by in the Standard Method of Measurement, the description shall be **corrected** so that it does provide that information."
		Clause 2.14.2	".. if or to the extent that the inadequacy is not dealt with in the Contractor's Proposals, the Employer's Requirements shall be altered or **modified** accordingly.
		Clause 2.15	"…he shall immediately give notice with appropriate details to Architect/Contract Administrator, who shall issue **instruction** in that regard."
		Clause 2.16.2	"Where the Contractor's Proposals do not deal with such a discrepancy, the Contractor shall notify the Architect/Contract Administrator of his proposed amendment to deal with it and the Architect/Contract administrator shall either agree the proposed amendment or decide how the discrepancy shall be dealt with…
EJCDC C 700 – 2013	Engineer	Paragraph 3.04.B	"Engineer will, with reasonable promptness, render a written **clarification**, **interpretation**, or **decision** on the issue submitted, or initiate an amendment or supplement to the Contract Documents."
NEC3 – 2013	Project Manager	Clause 17.1	"The Project Manager or the Contractor notifies the other as soon as either becomes aware of an ambiguity or inconsistency in or between the documents which are part of this contract. The Project Manager gives an **instruction** resolving the ambiguity or inconsistency."
ConsensusDocs 200	Owner	§ 3.3.3	"…, Constructor may be entitled to adjustments of the Contract Price or Contract Time because of **clarifications** or **instructions** arising out of Constructor's reports…"

In summary, the process usually starts with the participant understanding the contract documents where the defect is encountered. After which he chooses to present any of the six different types of resolution; Clarification, Decision, Instruction, Interpretation, Correction and Modification. Responses expected from the participant vary according to each Standard Condition of Contract. For example, 4 out of the 6 standard conditions of contract expect a clarification of the defect. Figure 3.1 completes the other responses mentioned in the six standard conditions of contract. However, keeping in mind that issuing a response would be futile if the document at hand with the defect encountered were not properly construed by the participant.

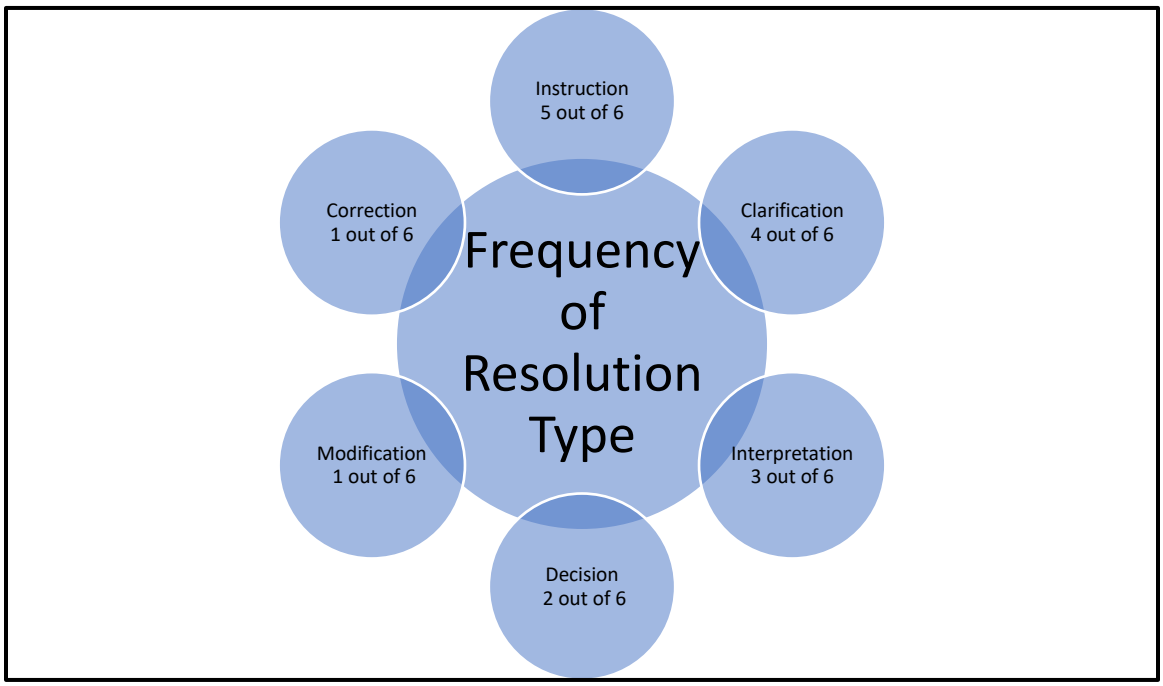

Figure 3. 1. Responses from the participant based on Standard Condition of Contract.

3.3.3 Implications of Issued Resolution

When any of the resolutions is issued, they are to be enforced by the acting parties. In addition these resolutions are probable of causing extra time or compensation which might not be accounted for. The following paragraphs will further explain how the solution of each standard condition will lead to conflicts between the parties of the contract.

In AIA, as mentioned in division 3.3 above, the contractor under §3.2.3 and §3.2.4 is under the obligation to report any errors, inconsistencies, or omissions. If the contractor fails to promptly report, "the contractor shall pay such costs and damages to the owner as would have been avoided if the contractor performs those obligations."(AIA 2007) On the other hand, if the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies, or omissions. Also, if the contractor believes that additional cost or time is involved because of clarifications or instructions in the Architect's response, the contractor shall make claims as provided in Article 15. Article 15 specifies "claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker"(AIA 2007).

In FIDIC, The Engineer's instruction is empowered by clause 3.3 which enforces the contractor to comply with such instruction. Therefore, we can deduce that the contractor may respond to any additional time or cost under clause 20.1 which specifies "if the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim." (FIDIC 1999) Also, under clause 20.4 "if a dispute (of any kind

whatsoever) arises between the parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the [Dispute Adjudication Board] for its decision, with copies to the other Party and the Engineer describing the event or circumstance giving rise to the claim." (FIDIC 1999)

In JCT, the type of resolution clause does not directly lead the contractor to claim but article 7 specifies, "If any dispute or difference arises under this Contract, either Party may refer it to adjudication in accordance with clause 9.2" (JCT 2011).

In EJCDC, paragraph 3.04.B specifies that the "engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim." (EJCDC 2013) A Change Proposal is defined under paragraph 1.01.A.9 as a written request seeking adjustment in contract price or contract time or both. Additionally, under paragraph 3.04.C if the Engineer gave a prompt "written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. [And] if Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12." (EJCDC 2013) Article 12 provides information about the claim processes and methods for claim resolution.

In NEC3, as it was previously mentioned in division 3.3.2, the project manager gives an instruction to resolve the specified defect and this instruction might be a compensation event. However, clause 63.8 specifies that "a compensation event which is an instruction to change the Works Information in order to resolve an ambiguity or inconsistency is assessed as if the Prices, the Completion Date and the Key Dates were for the interpretation most favorable to the Party which did not provide the Works Information." (NEC 2013) because NEC standard conditions of

contract follow the contra proferentum principle because it interprets the ambiguity or consistency against the party who wrote the Works information concerned (Rowlinson 2011). However, in all cases, the contractor's responsibilities under clause 27.3 is to "obey an instruction which is in accordance with the [NEC] contract and is given to him by the Project Manager or the Supervisor." (NEC 2013) The NEC standard condition gives the contractor the right to refer the dispute about an action of the project manager or the supervisor to the adjudicator, under option W1 clause W1.3.

In ConsensusDocs, §3.3.2 specifies that "Should Constructor discover any errors, omissions, or inconsistencies in the Contract Documents, Constructor shall promptly report them to Owner. It is recognized, however, that Constructor is not acting in the capacity of a licensed design professional, and that Constructor's examination is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions, or inconsistencies or to ascertain compliance with a Law, building code, or regulation. Following receipt of written notice from Constructor of errors, omissions, or inconsistencies, Owner shall promptly inform Constructor what action, if any, Constructor shall take with regard to the errors, omissions, or inconsistencies." (ConsensusDocs 2017) However, § 3.3.3 specifies "In accordance with this Agreement, Constructor may be entitled to adjustments of the Contract Price or Contract Time because of clarifications or instructions arising out of Constructor's reports described in this § 3.3[Contract Document Review]" (ConsensusDocs 2017) Additionally, under § 14.2.2, the contractor has the right for extra time or money by specifying "[that in] any case of omissions or errors in figures, drawings, or specifications, Constructor shall immediately submit the matter to Owner for clarification. Subject to an equitable adjustment in Contract Time or Contract Price

pursuant to ARTICLE 8, or a dispute mitigation and resolution, Owner's clarifications are final and binding." (ConsensusDocs 2017)

Table 3.6, summarizes the property of resolution given by the participant and its' impact on the contractor

Table 3. 6. Action and Reaction by the Contractor

Standard Conditions	Property of resolution		Possible impact of resolution	
	Clause/Article/ Paragraph	Description	Clause/Article/ Paragraph	Description
AIA Document A201 – 2007	-	-	Section 3.2.4	"If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15."
FIDIC Conditions of Contract for Construction – 1999	Clause 3.3	"The Contractor shall **comply** with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract."	Clause 20.1	"If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, **under any Clause of these Conditions or otherwise in connection with the Contract**, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the **claim**."
			Clause 20.4	"If a **dispute** (of any kind whatsoever) arises between the parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, **instruction, opinion** or valuation of the Engineer, either Party may refer the dispute in writing to the DAB..."
JCT SBC/Q – 2011	Clause 2.14.3	"…any correction, alteration or modification under clause 2.14.1 or 2.14.2 shall be treated as a **Variation**."	Article 7	"If any **dispute or difference arises under this Contract**, either Party may refer it to adjudication in accordance with clause 9.2"
	Clause 2.16.1	"The Architect/Contract Administrator shall not be obliged to issue instructions until he receives the statement, but, when issued, the contractor shall **comply** with those instructions…"		
	Clause 2.16.2	"…the agreement or decision shall be notified to the Contractor and treated as a **Variation**."		

EJCDC C 700 – 2013	Paragraph 3.04.B	"Engineer's written clarification, interpretation, or decision will be **final and binding** on Contractor…"	Paragraph 3.04.B	"Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a **Change Proposal**, and on Owner, unless it appeals by filing a **Claim**." "If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12."
NEC3 – 2013	Clause 27.3	"The Contractor **obeys** an instruction which is in accordance with this contract and is given to him by the Project Manager or the Supervisor."	Clause W1.3	The contractor may refer the **dispute** about an **action of the project manager** or the supervisor to the adjudicator.
ConsensusDocs 200 – 2011, revised 2017	§ 3.3.3 §14.2.2	"…, Owner shall promptly inform Constructor what action, if any, Constructor shall take with regard to the errors, omissions, or inconsistencies. "…, Owner's clarifications are final and binding."	Clause 14.2.2	"Subject to an equitable adjustment in Contract Time or Contract Price pursuant to Changes, or a dispute mitigation and resolution, Owner's clarifications are final and binding."

In conclusion, the standard conditions of contract described the various defects the contract documents may encounter along with methods to resolve such defects. These methods involve a participant that is well engaged in the project life-cycle. These participants are required to give six types of solutions which are assumed to be given after interpreting the contract documents. Therefore, the individuals can be called, interpreters as well as participants to the contract. Furthermore, the solution given may trigger a change in cost and time of the project. This change might cause any of the participants to claim or take the matter to dispute. The following chapter expands on the available material (interpretation rules) that the participant can use before escalating the dispute.

CHAPTER IV

INTERPRETATION RULES FRAMEWORK FOR THE ENGINEERING PROFESSIONAL

4.1 Preamble

This chapter will define additional individuals implicated in the resolution of defects, with highlighting their important role and the significance of supplying them with the right investigative tools. This will be followed by the nature of the interpretation rules, the integration, classification and filtration processes which were used to form the framework that guides the interpreter in construing the contract.

4.2 The individual entrusted with making an interpretation

In chapter 3 we have analyzed the different participants to the contract who are entrusted with the responsibility to give a solution, to the defect encountered in a contract. Other than the individuals introduced, who are described as engineering professionals Dispute Boards (DB), Mediator and arbitrators are involved in giving a resolution during the claim dispute time line depending on the written contract.

Dispute Boards ("DB") may be a Dispute Review Board ("DRB"), a Dispute Adjudication Board ("DAB") or a Combined Dispute Board ("CDB"), which is usually composed of one, three or more members. These members can be lawyers or engineers. DB are "established in accordance with the Dispute Board Rules of the International Chamber of Commerce (the "Rules") [to] aid the Parties in avoiding or resolving their Disagreements and Disputes." (International Chamber of Commerce 2015) They may assist the Parties in (i)

avoiding Disagreements (ii) resolving Disagreements through informal assistance or (iii) resolving Disputes by issuing Conclusions.

To further elaborate on the role of DB concerning the informal assistance with disagreements, we mention the following from the ICC rules. The DB can informally assist on its own initiative or after the request of any of the parties, on the condition that all involved parties have consented to the assistance. Being informal, the parties can refuse to abide by the informal assistance.

In addition, there exists a path where the DB can offer formal assistance. This occurs after involved parties refer cases of disagreement to the DB. This is followed by the DB offering a "Conclusion" and at this point the Disagreement becomes a "Dispute" (International Chamber of Commerce 2015). A conclusion means "either a Recommendation or a Decision, issued in writing by the Dispute Board". In contrast to the informal assistance, the conclusion given must be abided with especially when mentioned to do so in the binding contract under certain specific conditions, although the DB are not "arbitral tribunals" and "their Conclusions are not enforceable like arbitral awards. Hence, as mentioned in the ICC rules, "A Decision is binding on the Parties upon its receipt. [The Parties agree that if no Party has given written notice to the other Party and the DAB expressing its dissatisfaction with the Decision within 30 days of receiving it, the Decision shall remain binding and shall become final]." (International Chamber of Commerce 2015)In the case of failure to comply with the Decision, "whether it be binding or both final and binding, the other Party may refer the failure itself, without having to refer it to the DAB first, either to arbitration, if the Parties have so agreed, or, if not, to any court of competent jurisdiction. A Party that has failed to comply with a Decision shall not raise any issue as to the merits of the Decision as a defense to its failure to comply without delay with the Decision."

(International Chamber of Commerce 2015) This is because the parties involved already had 30 days in order to express their dissatisfaction with the issued decision.

The Dispute Boards are usually composed of independent and impartial professionals that are qualified, experienced and knowledgeable in the technical field. Defects encountered in the contract documents are one of the factors causing disputes forcing parties involved to ask for the formal assistance of the DB. Furthermore, the solution given by the Dispute Board are of high value. In support of their high value is the following example. In the case of dispute escalation; when one of the parties fails to comply with the Decision granted by the DB, forcibly involving the arbitral tribunal, it is stated in the ICC rules that the DB's decision is only reinforced instead of renewing the merits of the case. This emphasizes on how important the DB's role in Dispute resolution is and that the Decision formed is final and binding. This reason, also reinforces the idea that "the DB is ultimately resolving the dispute and not the Arbitral tribunal" (Schiller 2015, p.397) .

Subsequently, after emphasizing the importance of the DB's members' Decisions, the preciseness of their work in forming the solutions is important to reduce the probability of the solution being challenged. In which case, challenging the Decision would lead to extra time and money consumed in the arbitration process. Therefore, in this chapter we aim to equip these individuals with interpretation rules that they may rely on while making their interpretation.

4.3 Interpretation Rules' Disposition and Source

Interpretation rules are rules used to interpret the contract documents. They are used as common law rules that may be understood as legal concepts which are uniquely designed to accommodate the seemingly conflicting demands of stability in the changing working field. This

demand is fulfilled by the rules having two meanings at the same time; the jural meaning and the normative meaning. The jural meaning "refers to the structural core undergirding a legal concept that enables its use by participants in legal discourse" (Balganesh and Parchomovsky 2014, p.1244). This meaning is usually incapable of being applied by itself to all situations and contexts, whereas the normative meaning renders it applicable to a context. The normative meaning "refers to the meaning that a legal concept and its jural meaning come to be cloaked in as a result of external interpretive influences, which may in turn be drawn from a variety of situational goals." (Balganesh and Parchomovsky 2014, p.1241) The normative meaning works in tandem with the jural meaning and allows the common law to accommodate changes in its values and goals (Balganesh and Parchomovsky 2014).

The interpretation rules used in this chapter are collected from guides and documents written by practitioners and professionals in such fields. Throughout the chapter, we will be referring to them as the 5 sources keeping their sequential order. The first source is a book called "Interpreting Construction Contracts: Fundamental Principles for Contractors, Project Managers, and Contract Administrators" written by H. Randolph Thomas and Ralph D. Ellis Jr. The book acts as a pragmatic reference for engineers and managers working in the construction industry, it can also be used as a teaching resource. The authors seek to rescue contractors, project managers, and contract administrators from struggling to interpret construction contracts (Thomas and Ellis Jr 2007).

The second source is a book called "Smith, Currie and Hancook common sense construction law: A Practical Guide for the Construction Professional" written by Thomas J.kelleher, JR., John M. Mastin, JR. and Ronald G. Robey. This book provides a practical, common sense perspective to the legal issues affecting the construction industry. The book is a

general teaching tool that would help in expansion of knowledge and awareness of the issues encountered, it is not a substitute for the advice of your attorney (Kelleher Jr et al. 2014).

The third source is an article written by Professor Keith A. Rowley with a title of "Contract Construction and Interpretation: From the "Four Corners" to Parol Evidence (and Everything in Between)". This article explores the process and the rules of interpretation used by Mississippi courts and the circumstances under which the Mississippi courts and juries to would consider evidence beyond the "four corners" of the written instrument. Attorneys responsible for drafting legal documents should benefit from such examination by being alerted to the many pitfalls associated with imprecise or incomplete draftsmanship. As well as, those who handle litigation concerning the written words would be better prepared to litigate the consequences of imprecise or incomplete draftsmanship. "This article should also prove useful to the judges before whom these disputes come and those whose interest in the process of giving meaning and consequence to written agreements is more academic." (Rowley 1999, p.79)

The fourth and fifth source used are documents written by practicing lawyers in litigation, the fourth document with a title of "A Primer on Contractual Interpretation" written by Geoff R. Hall and Michael Feder, specifies a simple list of fundamental precepts of interpretation(Hall and Feder 2012). The fifth source is a chapter from the Missouri Bar Deskbook called "Contract Interpretation" written by Bradford B. Lear and Todd C. Werts. This chapter deliberates how Missouri courts give effect to the terms of a contract when the parties are in dispute, which is important for counselling the lawyer representing the parties and the drafter of the contract (Lear and Werts 2007).

4.4 Integration Process and the Classification Given by the Sources

4.4.1 Integration Process

The five sources mentioned in section 4.3 were examined to identify the rules of interpretation, each source's rules were extracted and summarized in a separate table. Next, the similar rules were combined together under one heading and different rules were also integrated under a formed heading, forming an integrated set of rules. Figure 4.1 shows how the common rules and separate rule are combined. The objective was to try our best to encompass all the rules used to interpret the words of the contract.

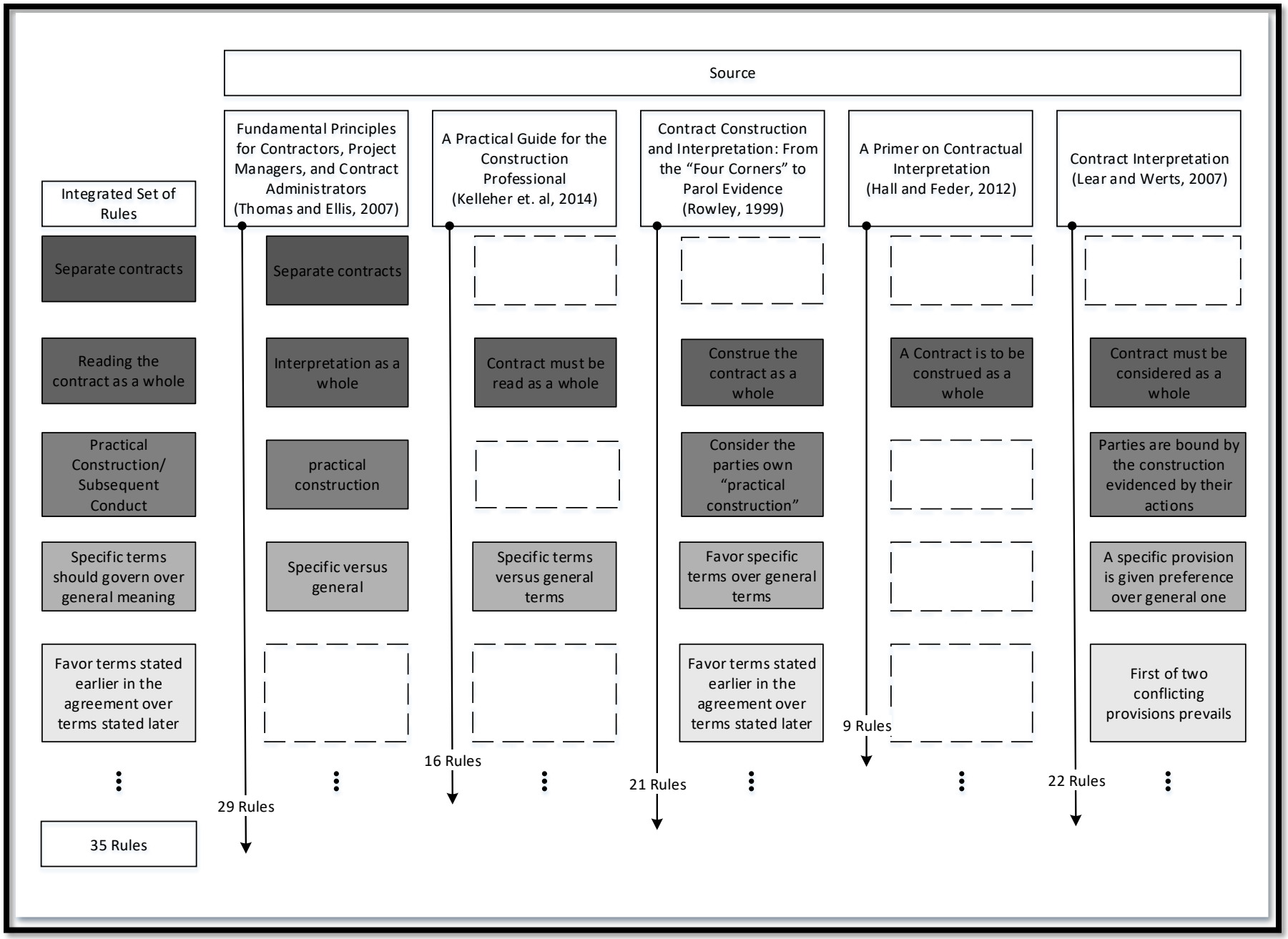

Figure 4. 1. Integration Process

The rules collected from all sources are shown in appendix (A), the tables presented show the name of the rule along with an explanation described in each source about each rule. The combination process revealed that more than one source was needed to extract the rules. More specifically, nine of the rules isolated were found in one source, another nine were found in two sources, nine rules were found in three sources, six were found in four sources and three in five sources, in total forming 35 rules. As source one encompassed many of the rules found in other sources, it was used as our main aid in classifying and understanding the rules.

4.4.2 Classification Process

Before classifying the rules to aid the interpreter in making the needed interpretation an examination was done on determining the classification given by each source. These rules are split into sections according to the classification they are associated with. A small explanation about the divisions given will be discussed below.

I. Procedural Rules

The first division is the procedural rules which specifies rules used as guidelines within which the court must operate. (Thomas and Ellis Jr 2007) This division is split into three sub-headings; first of which are Documents and Evidence that make up the entire agreement, second of which is Control and finally Standards of Interpretation.

The first sub-heading is the documents and evidence which makes up the entire agreement, which in other words, according to source two are the facts and circumstances

surrounding the contract formation. These rules are grouped together depending on the similarity of their nature;

(1) Separate Contracts and Reference Documents rules. These allow the interpreter to set the boundaries of the contract constituents, which are used in making an interpretation. Table 1 in Appendix A, provides a summary of the description specified in each source about the separate contracts and the reference documents rules.

(2) The Merger or Integration clause and Parol Evidence Rule. Both are used as indicators for the use of evidence surrounding the contract. The Merger clause is put in the contract to indicate that the contract is fully integrated and supersedes prior negotiations, arrangements, etcetera between the parties relating to the subject matter. "However, the mere fact that a written contract contains a merger or integration provision does not guarantee full integration." (Rowley 1999). In the case a merger clause is included in the contract and as per the parol evidence rule no extrinsic evidence shall be used. Yet, in the particular case where a merger clause is included in the contract and certain aspects of the contract are ambiguous; then extrinsic evidence may be used given that they do not contradict or vary the contract. Table 2 in Appendix A provides a summary of the description specified in each source about the merger clause and the parol evidence rule.

(3) Extrinsic Evidence rules. Some of these evidences occur before the signature of the contract such as; the oral agreement collateral to the contract, the parties' prior dealings and the contract surrounding circumstances. Others such as the practical construction rule occur during the execution of the contract which contains the

highest weight. It is difficult to encompass the various instruments that can be used as evidence, nonetheless there appears to be consensus about the following four rules of evidence.

a. Oral Agreement Collateral to the Contract, it specifies that preliminary oral agreements can be used as evidence to modify the contract.
b. The Parties' Prior Dealings, it specifies that earlier behaviors and practices done by the same contracting parties, is used as an evidence to aid in making an interpretation, but cannot be used to modify the clear, express terms of a written contract.
c. Accounting for Surrounding Circumstances, it specifies when making an interpretation the interpreter needs to consider the surrounding circumstances such as the country's economic study.
d. Practical Construction also called subsequent conduct, it is also one of the primary rules of interpretation. It specifies that evidence collected from the parties' actions during execution of the contract is given great value.

The role of the extrinsic evidence and the circumstances at which they are used was explained in section 2.6.4 above. This kind of evidence is up to the court to decide on when it can be used; whether at the beginning of the interpretation process or after. However, a major number of courts mentioned in the researched articles, prefer to go through the four corners of the contract before using any extrinsic even if the contract was unintegrated and ambiguous. Table 3 in Appendix A provides a summary of the description specified in each source about the extrinsic evidence rules.

The second sub-heading is the controls guiding the interpretation that can be adopted. The rules under this sub-heading are used by the courts to ensure that the legal consequences of its interpretation do not violate its contract or infringe on the contractual rights of the parties. These rules are:

(1) Contract Alteration. It specifies that when the contract does not reflect the party's intention some courts have limited rights to rewrite or make a new contract.
(2) Enforce Contract as Written. It specifies that the contract should comply with one of the legal requirements which is to enforce the provisions written in the contract.
(3) Incorporate Existing Laws. It specifies that courts need to construe the contract using the laws of the place the contract was formed.

Table 4 in Appendix A provides a summary of the description specified in each source about the discussed rules.

The third sub-heading is the standards of interpretation, which are the rules adopted when choosing among possible interpretations of the same defect. These rules are;

(1) Reasonable Interpretation. It specifies that an interpretation should be given a meaning that would be adopted by a reasonably intelligent person acquainted with all operative usages and knowing all of the circumstances before and at the time of the making of the agreement.
(2) Reason and Equity. It specifies that an interpretation should give a reasonable end result and avoid leading to an absurd or harsh one, unless the terms are express and lend themselves to no other reasonable interpretation.
(3) Liberal versus strict interpretation. It specifies that an interpretation should not be lenient or strict; it shall rather reflect the realistic limitations of the language used.

(4) Legality and Validity. It specifies that an interpretation should give a legal effect to the contract and a meaning that validates the agreement.

(5) Promoting Performance. It specifies that regardless of how clear the words are, the adopted interpretation shall render performance possible.

(6) Implied Contractual Obligations. It specifies obligations that are not explicitly stated but are implied in the contract. Courts are reluctant to embark upon the aid of these rules unless the situation warranted their use. These implied obligations are;

a. Good Faith and Fair Dealing: Imposes an obligation on both parties' to act in decency, fairness and reasonableness.

b. Spearin Doctrine: Implies that the contractor will not be responsible for the consequences of defects in the plans and specification that are prepared by the owner.

c. Duty to Cooperate: Implies that neither party will place any obstacle in the way of the happening of such event, and where a party is himself the cause of the failure he cannot rely on such condition to defeat his liability.

Table 5 in Appendix A provides a summary of the description specified in each source about the standard rules of interpretation.

II. Operational rules

The second division is the operational rules, these rules are applied to the facts of a dispute to determine the meaning of a contract. This division is split into three sub-divisions; primary rules of interpretation, secondary rules of interpretation and general rules of interpretation.

The primary rules of interpretation address the broad questions to ascertain the meaning of the contract, rules under this sub-division are;

(1) Plain Meaning. It focuses on establishing the meaning of single words or phrase. It specifies that certain words in the contract can be given their ordinary/common usage meaning unless the word has a technical or a trade meaning.

(2) Patent Ambiguity. It is one of the last resort rules that considers the prebid duties of the contractor. It specifies that when there is a drastic or obvious ambiguity the interpretation is given against the contractor because he is held responsible for not inquiring about the ambiguity during the question and answer period.

(3) Interpretation as a Whole. It focuses on the interaction of the relevant documents. It specifies that the contract documents are to be interpreted by reading all documents together including reference documents.

(4) The Order of Precedence clause. It specifies that when the ambiguity remains unsolved and irrevocable the interpreter can use the order of precedence to identify which document govern, in order to resolve the conflict. It is used as a substitute for the rule against the drafter.

(5) Ruling against the Drafter, also called The Contra Proferentem rule. It specifies that when the ambiguity remains unsolved the terms are construed strongly against the party responsible for drafting them. Even though this rule is used as a last resort rule there are three conditions for it to apply; first of which, the contract must have at least two reasonable interpretations. Second, one of the two parties must have chosen the ambiguous language and finally, the non-drafting party must demonstrate that it relied on its interpretation.

Table 6 in Appendix A provides a summary of the description specified in each source about the primary rules of interpretation mentioned above.

The second sub-division consists of the secondary rules of interpretation. These rules are used to assist the primary rules of interpretation when needed. These rules are:

(1) Technical Meaning, which specifies that technical words are interpreted from the viewpoint of how a person in the profession or business with which it is associated would normally understand it. Technical words are given their technical meaning unless the particular word is defined by the parties.

(2) Consistent Meaning, which specifies that words used in one sense in one part of the contract are to be used in the same sense in another part of the instrument, unless the context indicates otherwise.

(3) Rule of Associated Words, also called Noscitur a Sociis. This rule specifies that words are to be taken in their immediate context. It is split into two further rules called:

    a. Ejusdem Generis: "A general term joined with a specific one will be deemed to include only things that are like (of the same genus as) the specific one." (Patterson 1964, p. 853)

    b. Expressio Unius: "If one or more specific items are listed, without any more general or inclusive terms, other items although similar in kind are excluded." (Patterson 1964, p.853)

(4) Reconcile Terms. This rule specifies that the court should reconcile two clauses of a contract that are apparently repugnant.

(5) No Provision is treated as Useless. This rule specifies when making an interpretation, no word or provision is rendered repugnant, senseless, ineffective, meaningless, or incapable of being carried out consistently with all other provisions of the contract.

(6) Supply Omitted Terms. This rule specifies when parties have not agreed to an essential omitted term courts may supply a reasonable one.

Table 7 in Appendix A provides a summary of the description specified in each source about the secondary rules of interpretation mentioned above.

The third sub-division is the general rules of interpretation, which is also called, common canons of interpretation. These rules are also used to assist the primary rules of interpretation when needed. They are used in conjunction with reading the contract as a whole. (Thomas and Ellis Jr 2007)

(1) Specific Terms should govern over General Terms. It specifies when there is inconsistency between a specific provision and a general provision in the same document or among documents, the specific provision qualifies or takes precedence over general provision.

(2) Written Words should Prevail over Preprinted Words. It specifies when the preprinted, typewritten and handwritten provisions conflict each other, handwritten provisions governs typewritten, and typewritten provisions govern preprinted.

(3) Written Words should prevail over Figures. It specifies where words and figures in a contract are inconsistent, the words govern.

(4) Favor Terms stated Earlier over Terms stated Later in the Same Document. It specifies when two provisions of a contract are in conflict, the provision that appears in the contract first will prevail.

Table 8 in Appendix A provides a summary of the description specified in each source about the general rules of interpretation mentioned above.

It has been deduced that these rules are split into two classifications, one of which contains rules that are used as guidelines within which the court must operate when controlling and evaluating the interpretation process. The other classification contains rules that can be used in the actual application of the evidence to be interpreted. Although some rules were grouped under different classifications in the sources used, the implied meaning would fall under the classification given above. The only major dissimilarities are rules construed as primary rules in one source and construed as secondary rules in another. However, when this was encountered, source number one which contained the highest number of rules governed.

4.5 Filtering the Rules According to the Engineering Professional's Capabilities

This process emphasizes the idea that the individual making an interpretation with legal implication, is in fact coming from an engineering background. However, the interpreter should be either qualified to be guided by legal rules or has access to legal expertise, because of the binding implication of such interpretation. It further sheds light on the need of the engineer entrusted with such task to be well versed in construction law related issues. Providing the interpreter with the previously discussed rules, which were filtered into four ranks, according to their extent of relevance.

The first rank is made up of rules which the interpreter is capable of employing. This trade encounters the rules which the interpreter is believed to have the capability, technical knowledge and jurisdiction to operate. The second rank is made up of rules which the interpreter is capable to observing. These rules are regarded as important for the engineering professional to satisfy and/or to acknowledge, although such rules may be viewed out of the engineer's jurisdiction to employ. The third rank is made up of rules which are expected to overshadow the interpretation being formulated, albeit them being in principle seen as out of the interpreter's jurisdiction to employ. The fourth rank encompasses those rules which are expected to be applicable for interpreting the kind of defect that lends itself to being a pure matter of law. Figure 4.2 demonstrates a scale of the ranks which strongly and least affect the interpreter's interpretation.

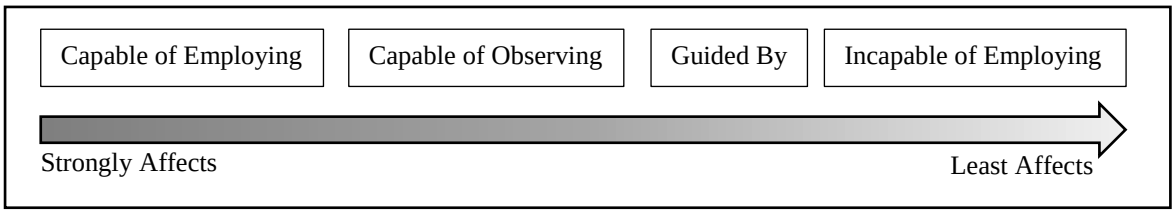

Figure 4.2. Scale of Influence

The filtration process into the four ranks was performed by analyzing each rule and weighing it using our basic judgment on the interpreter's capabilities, keeping in mind the classification given for each rule which were discussed above. The applicability of these rules is viewed to be commensurate with the interpreter's capacity. Further justification for assigning each rule to its relevant extent is given in the tables provided in Appendix A. We can deduce that there are fifteen rules that the interpreter is capable of employing, seven rules that the interpreter is capable of observing, six rules that the interpreter is guided by, and seven rules that the interpreter

is incapable of employing. Figure 4.3 illustrates the process and table 4.1 specify which rules were filtered as rules the interpreter to employ, which are to be guided by, which are to observe and which are incapable of employing.

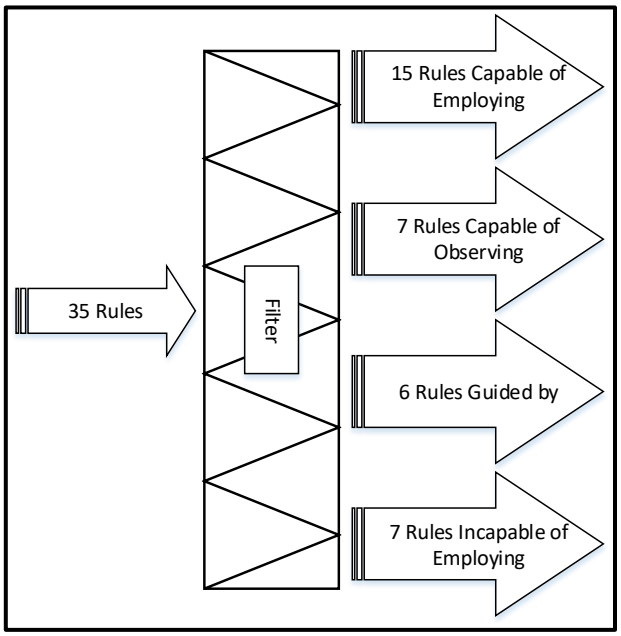

Figure 4.3. Filtration Process

Table 4. 1. Filtered Rules in Accordance with the Extent of Relevance

Extent of relevance	Rules	Classification given to the rules
Capable of Employing	Separate Contracts	Procedural
	Reference Documents	Procedural
	Practical Construction	Operational
	Reasonable Interpretation	Procedural
	Promoting Performance	Procedural
	Plain Meaning	Operational
	Patent Ambiguity	Operational
	Interpretation as a Whole	Operational
	The Order of Precedence	Operational
	Technical Meaning	Operational
	Consistent Meaning	Operational
	Ejusdem Generis	Operational
	Expressio Unius	Operational
	Specific Terms should govern over General Terms	Operational
	Written Words should prevail over Preprinted Words	Operational
	Written Words should prevail over Figures	Operational
	Favor Terms stated Earlier over Terms stated Later in the Same Document	Operational
Capable of Observing	The Merger or Integration clause	Procedural
	Parol Evidence Rule	Procedural
	Reason and Equity	Procedural
	Enforce Contract as Written	Procedural
	No Provision is treated as Useless	Operational
Guided By	Oral Agreement Collateral to the Contract	Procedural
	Accounting for Surrounding Circumstances	Procedural
	Liberal versus strict interpretation	Procedural
	Good Faith and Fair Dealing	Procedural
	Spearin Doctrine	Procedural
	Duty to Cooperate	Procedural
Incapable of Employing	The Parties Prior Dealings	Procedural
	Contract Alteration	Operational
	Incorporate Existing Laws	Procedural
	Legality and Validity	Procedural
	Ruling Against the Drafter	Operational
	Reconcile Terms	Operational
	Supply Omitted Terms	Operational

Table 4.1 shows that the rules which the interpreter is capable of employing are mainly operational rules, these rules which are used to operate on facts. On the other hand, the rules which the interpreter is guided by and capable of observing are mainly procedural rules, these rules which guide the interpreter to control and evaluate the interpretation process.

Subsequently, the rules the interpreter is capable of employing, observing and guided by were further sequences to facilitate their application by the interpreter. The framework would allow the interpreter to understand the sequence to be followed, and identify which rules are associated with, or feed into the interpretation rendered. The aim is to show the sequence and interrelation between these rules when being operated by the interpreter, however this is one possible way of demonstration.

To start with determining a framework, the sources' inherent sequences were studied thoroughly to better infer the sequence with which, the rules are to be properly incorporated in the intended framework. Figure 4.4 below shows the sequence Thomas and Ellis presented in their research (Thomas and Ellis Jr 2007). The flowchart was not entirely adopted because there are some reasons mentioned in their research that allow us to deviate from it. One of these reasons is that the language is rarely plain in meaning to preclude other inquiries from being made. Therefore, demonstrating the plain meaning rule as the first rule in the hierarchy may not be advisable, especially that this rule is seldom conclusive. Another reason is the patent ambiguity rule, this rule tends to measure the intention of the party performing the written contract. This measure is regarded as an accommodating role not a driving factor in the interpretation process.

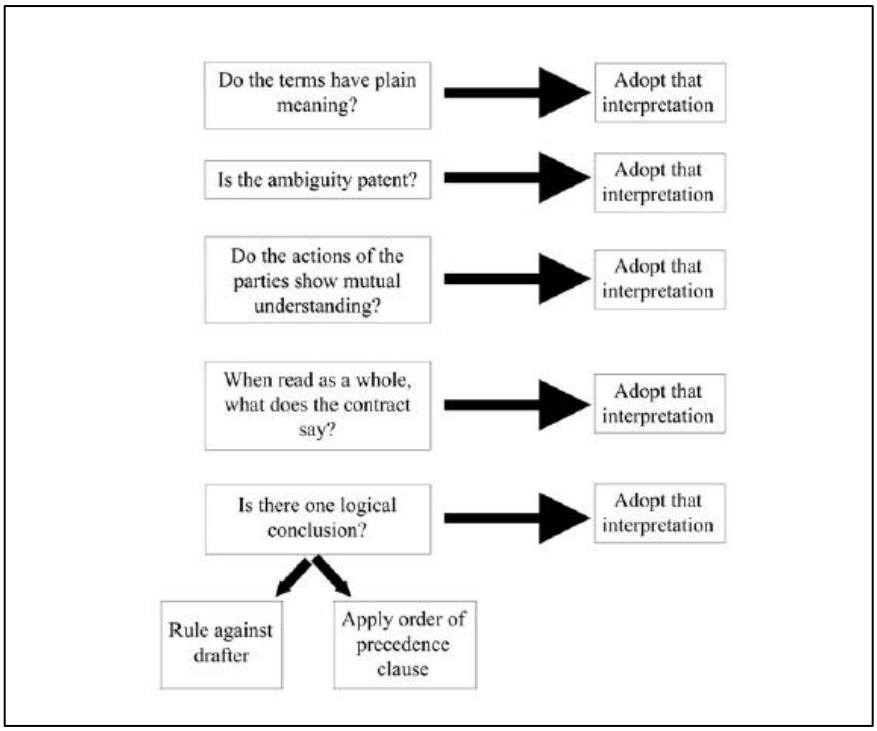

Figure 4. 4. Flow Chart by Thomas and Ellis Book

Other sources were studied thoroughly to determine the sequence at which the rules may adopt. Some of these implied justifications are; their dependency on construing the contract as a whole as a first resort rule, the importance of determining the limit of the documents used for interpretation and the usage of the general rules in an interchangeable manner throughout the interpretation process.

Consequently, after our filtration of the rules and with the help of the sequence given by these sources, the following rules with the proposed order are introduced in figure 4.5.

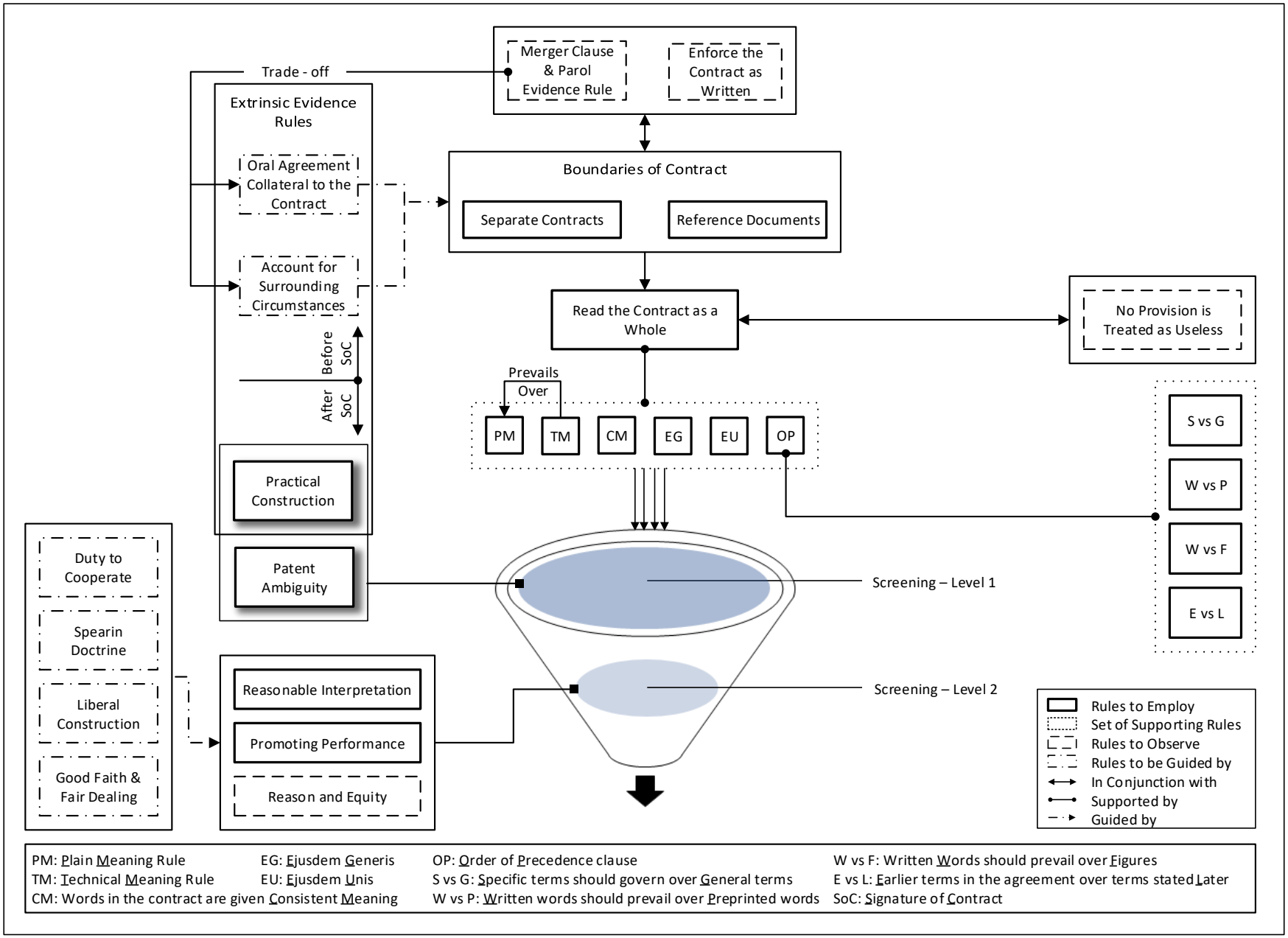

Figure 4. 5. Proposed Contract Document Interpretation Framework

We can deduce that the interpretation process is split into three stages. The first stage tackles the determination of the boundaries of the contract which the interpreter needs to use to make an interpretation. These boundaries are determined by using separate contracts and reference documents rules. The interpreter while employing these rules needs to observe the existence of the merger clause in the contract, as it is used as an indicator of how much integrated the contract is. Furthermore, because the interpreter can access the extrinsic evidence that exists during the contract formation, he is to use them for guidance. However, the interpreter needs to be aware that such extrinsic evidence should not vary or contradict the contract to satisfy the parol evidence rule.

The second stage tackles the making of an interpretation by reading the contract as a whole, as it is an imperative rule the interpreter needs to understand the document from all its corners and observe that no provision is disregarded. While the interpreter is construing the contract in a holistic manner, he is supported by rules that help him determine the meaning associated with the word or terms. These rules may allow the interpreter to render more than one logical interpretation, but in the case where a term has a plain meaning and a technical meaning, the intended technical meaning prevails.

The third stage covers the filtration process to be able to result with one interpretation. The practical construction and the patent ambiguity rules act as a first level of screening. These rules determine if the warranted interpretation is in accordance with the parties' evidence of mutual understanding, or can be construed against the contractor because of his shortage from fulfilling his due diligence, given that the ambiguity is obvious. If more than one logical interpretation remains then a second level of screening occurs, which applies according to the

subject of interpretation. During the implication of the second screening rules the interpreter is to acknowledge and be guided by the implied rules the court may use.

4.6 Conclusion

With the purpose of arming the engineering professional with the appropriate background to be used in construing the contract we have shed light in this chapter on the various rules deduced to be applicable for the engineering professional to use from the five mentioned sources. This will be followed by chapter five which will emphasize on the most encountered types of interpretation rules in construction which are the order of precedence rule and its supporting rules. This will add on the understanding of engineering professional by forming a model language to be used in contract drafting.

CHAPTER V

MODEL LANGUAGE FOR THE ORDER OF PRECEDENCE RULE

5.1 Preamble

After reading the common-law rules and the six standard condition of contract, this chapter aims to comprehensively prescribe the terms of the order-or precedence rule, particularly in view of the fact that the six standard sets of contract conditions were found to be different in the way the priorities of documents and other related issues are addressed.

5.2 Clauses in the Contract Documents

During the construction process, written contracts affiliate the party involved or the stated interpreter with written requirements providing guidance and conditions at which they need to abide by. Therefore, to form a model language; a careful reading was done of the six standard conditions of contract to determine all the clauses relating to the interpretation process. Four concepts were determined; the first included the clauses that indicate the completion of the contract which were described as the merger or integration clause in chapter 4. The second included the clauses that explain meaning of terminologies that may be addressed in the contract. The third involved the clauses describing the association between the contract documents. Finally, the last concept grouped clauses that showed the actions required by the participants which were discussed thoroughly in chapter 3.

5.2.1 Word Meaning Clauses

As explained in chapter 4, during contract formation, the inclusion of a merger clause indicates that the parties intended to include, in the contract documents, everything required for the project completion. However, the format for such writing differs from one contract to another depending on the standard form adopted. Table 5.1 provides the clauses in the six standard conditions of contract describing the integration of the contract documents.

Table 5. 1. Merger Clause or Integration Clause

Standard conditions	Clause/Article/ Paragraph	Representation of the contract documents
AIA Document A201 – 2007	§ 1.1.2	"The Contract documents form the Contract for Construction. The Contract represents the entire and Integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral."
FIDIC Conditions of Contract for Construction – 1999	N/A	N/A
JCT SBC/Q – 2011	N/A	N/A
EJCDC C 700 – 2013	Paragraph 1.01.A.12	"The Contract [is defined as:] The entire and integrated written contract between the Owner and Contractor concerning the Work."
	Paragraph 3.01.D	"The Contract supersedes prior negotiations, representations, and agreements, whether written or oral."
NEC3 – 2013	Clause 12.4	"This contract is the entire agreement between the parties "
	Clause 12.3	"No change to this contract, unless provided for by the conditions of contract, has effect unless it has been agreed, confirmed in writing and signed by the Parties."
ConsensusDocs 200 – 2011, revised 2017	§ 13.1	"Except as expressly provided, this Agreement is for the exclusive benefit of the Parties, and not for the benefit of any third party. This Agreement represents the entire and integrated agreement between the Parties, and supersedes all prior negotiations, representations, or agreements, either written or oral."

As summarized in table 5.1, it can be deduced that four of the six standard conditions of contracts; AIA, EJCDC, NEC and ConsensusDocs intend to deliver the same implication from

the stated clauses. They all lean towards determining the boundaries of the contract which the parties may use.

For example, the AIA explains in their commentary section 1.1.2, about the presence of such a clause that talks about an integrated agreement insinuates that "everything discussed as part of contract negotiations that conflicts with, is inconsistent with, or is omitted from, the written agreement is not part of the contract." (AIA 2007) In addition, the NEC explains that such clauses are put to enforce the fact that the documents agreed upon by both parties are the documents forming part of the contract. Also, it specifies that, any document not agreed upon by both parties cannot be relied on by either party (Rowlinson 2011).

5.2.2 Terminologies

For ideal construction of contract documents, drafters aim to have the least number of ambiguous words that might cause misinterpretation. Therefore, it was noticed that the six sets of standard contract conditions addressed this issue by including clauses that guide the parties to the contract, or the interpreter, to understand the words that may accommodate more than one meaning. Table 5.2 provides the clauses described in the six standard conditions of contract.

These clauses describe several points, the first is that words that have a well-known technical or construction industry meanings are used in that sense, unless the contract states otherwise. This was also mentioned in the sources discussed in chapter 4 under the rule called technical meaning rule. The second point includes defining terms such as "written", "agreed", or gender terms that address more than one definition. The third, includes limiting the infusion of the words' meaning by their heading or margin, which might cause confusion when interpreting the contract. And finally, the fourth describes that if modifiers were written in one statement and were absent from another, this should not affect the interpretation of the statements involved.

Table 5. 2. Clauses Addressing Words' Meaning Perceptions

Standard conditions	Clause/Article /Paragraph	Word meaning clause(s)
AIA Document A201 – 2007	§1.2.3	"Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings."
	§1.4	"The fact that a modifier (such as "all" and "any") and an article (such as "the" and "an") is absent from one statement and appears in another is not intended to affect the interpretation of either statement."
FIDIC Conditions of Contract for Construction – 1999	Clause 1.2	"In the Contract, except where the context requires otherwise: (a) words indicating one gender include all genders; (b) words indicating the singular also include the plural and words indicating the plural also include the singular; (c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and (d) "written" or "in writing" means hand-written, type-written, printed or electronically made and resulting in a permanent record. The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions."
JCT SBC/Q – 2011	Clause 1.4	" In the Agreement and these Conditions, unless the context otherwise requires: .1 the headings are included for convenience only and shall not affect the interpretation of this Contract; .2 the singular includes the plural and vice versa; .3 a gender includes any other gender; .4 a reference to a 'person' includes any individual, firm, partnership, company and any other body corporate; and .5 a reference to a statute, statutory instrument or other subordinate legislation ('legislation') which re-enacts or consolidates it, with or without modification, and including corresponding legislation in any other relevant part of the United Kingdom."
EJCDC C 700 – 2013	Paragraph 1.02.F	"Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning."
NEC3 – 2013	Clause 12.1	"In this contract, except where the context shows otherwise, words in the singular also mean in the plural and the other way round and words in the masculine also mean in the feminine and neuter."
ConsensusDocs 200 – 2011, revised 2017	§ 14.2.4	"Unless otherwise specifically defined in this Agreement, any terms that have well-known technical or trade meanings shall be interpreted in accordance with their well-known meanings"

As noted in table 5.2, the technical meaning clause is described in three standard conditions; AIA, EJCDC and ConsensusDocs. Additionally, the clause specifying that one gender should include any other gender and the clause specifying the singular should include the plural and vice versa are both stated in FIDIC, JCT and NEC. Finally, clauses specifying that marginal words and other headings should not sway the interpretation of the following conditions are stated in FIDIC and JCT.

5.3 Association Among the Contract Documents

The third section includes clauses that describe the interrelation and integration among the contract documents, and how should they be read. These clauses can be construed as the backbone of the interpretation process as it can be used in understanding the requirements of the contract and solving any defect encountered during contract execution. The six standard conditions of contract differ in stating the clauses for these matters. Table 5.3 specifies the different approaches by the six standard conditions of contract.

In the AIA standard conditions, they believe that because the contract documents are of collaborative effort they should be read as complementary to one another, and should not be given a pre-selected order of precedence. In the AIA's perception, an order of precedence assumes that one item is more important than another, which might cause absurd results especially when a highly-prioritized document might have deficiencies. However, if the owner insists on establishing a precedent, the guide for the Supplementary Conditions proposes a priority of documents.

On the other hand, FIDIC standard contract conditions specify a priority of document, for the purpose of interpretation. It specifically states that since words such as "ambiguity" or "discrepancy" are not mentioned as pre-conditions for the applicability of the priority of documents, one can understand that the priority list is put initially to understand the requirements of the contract documents before actually using it to solve apparent inconsistencies or contradictions. In summary, in FIDIC, priority of documents is used for both the purpose of interpreting contract documents and to solve defects when encountered. This is supported by the following two examples. First, since it is known that particular conditions modify the general conditions, a party may refer to the priority of documents to identify the circumstances in which some provisions in the particular conditions may be reviewed when reading the general conditions. Second, it is also supported by the understanding that specifications contain a higher volume of information in describing the work, therefore a party may refer to it while reading the drawings to obtain a full understanding of the scope of work.

On the other hand, the NEC prefers not to include any clause in relation to the integration among the contract documents, but specifies a mandatory obligation for either party to notify the other when an ambiguity or inconsistency is encountered.

Table 5. 3. Clauses Addressing the Interrelation between Contract Documents

Standard conditions	Clause/Article/ Paragraph	Association among the contract documents
AIA Document A201 – 2007	§1.2.1	"The Contract Documents are complementary, and what is required by one shall be as binding as if required by all"
	§1.2.1.1 Supplementary Conditions	"In the event the owner insists on establishing a precedent", the guide for the Supplementary Conditions proposes "Model language" as follows: "In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities: (1). Modifications. (2) The Agreement. (3) Addenda, with those of later date having precedence over those of earlier date. (4) The supplementary Conditions. (5) The General Conditions of the Contract for Construction. (6) Division 1 of the Specifications.(7) Drawings and Divisions 2 - 49 of the Specifications. 8. Other documents specifically enumerated in the Agreement as part of the Contract Documents."
FIDIC Conditions of Contract for Construction – 1999	Clause 1.5	"The documents forming the Contract are to be taken as mutually explanatory of one another. For the purpose of interpretation, the priority of the documents shall be in accordance with the following sequence: (a) the Contract Agreement (if any), (b) the Letter of Acceptance, (c) the Letter of Tender, (d) the Particular Conditions, (e) these General Conditions, (f) the Specification, (g) the Drawings, and (h) the Schedules and any other documents forming part of the Contract."
JCT SBC/Q – 2011	Clause 1.3	"The Agreement and these Conditions are to be read as a whole but nothing contained in the Contract Bills or the CDP Documents, nor anything in any Framework Agreement, shall override or modify the Agreement or these Conditions."
EJCDC C 700 – 2013	Paragraph 3.01.A	"The Contract Documents are complementary; what is required by one is as binding as if required by all."
	Paragraph 3.01.C	"Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern."
NEC3 – 2013	N/A	N/A
ConsensusDocs 200 – 2011, revised 2017	§ 14.3	"In case of any inconsistency, conflict, or ambiguity among the Contract Documents, the documents shall govern in the following order: (a) Change Orders and written amendments to this Agreement; (b) this Agreement; (c) subject to §14.2.2 the drawings (large scale governing over small scale), specifications, and addenda issued and acknowledged before Agreement execution or signed by both Parties; (d) information furnished by Owner pursuant to §3.13.4 or designated as a Contract Document in §14.1; (e) other Contract Documents listed in this Agreement. Among categories of documents having the same order of precedence, the term or provision that includes the latest date shall control."
	§ 14.2.1	"The drawings and specifications are complementary. If Work is shown only on one but not on the other, Constructor shall perform the Work as though fully described on both."
	§ 14.2.3	"Where figures are given, they shall be preferred to scaled dimensions"

It can be inferred from table 5.3, that all five standards of conditions agree on construing the contract documents as complementary to one another, as if they are part of whole that mutually explain each other. Pinpointing that these documents collectively describe a particular item of work. In addition, the ConsensusDocs specify that if work is shown in one but not on another, the Constructor shall reasonably infer and perform work as though specified in both.

Moreover, FIDIC and ConsensusDocs add a priority of documents in their general conditions to act as guidance for the interpreter to use. The FIDIC guide book, further explains that "the priority of documents listed below the Conditions of Contract is based on the principle that the Employer's documents should have priority over the Contractor's documents. Tenderers should be aware of the effects of this latter principle, and should emphasize any non-compliance." (FIDIC guide, 1999)

5.3 Contract Documents and their Nature of Change (Addenda)

It is known that contract documents are subject to change, either before the signature of contract or after. There are two kinds of change, Theses are: addenda, on one hand, and modifications and contract alterations, on the other. They can be distinguished by the point in time at which the agreement is executed, or – in the absence of that – the letter of acceptance is issued. Modifications tend to cause changes in all the documents including the contract agreement. Figure 5.1 shows the difference between the two kinds of change.

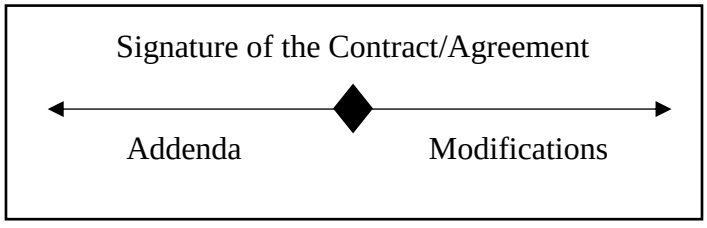

Figure 5. 1. Timing of the Addenda and Modifications

Contract addenda is plural for an addendum, which is defined by the ConsensusDocs as documents (addenda) that are“issued and acknowledged before Agreement execution or [signature] by both Parties.” (ConsensusDocs 2017). Figure 5.2 shows the timeline of the addenda’s occurrence. The addenda mainly tackle; (1) answers to questions raised by the bidders during the bidding phase and during the pre-bid conference (2) corrections to errors or omissions of the bidding documents; (OGS 2015).

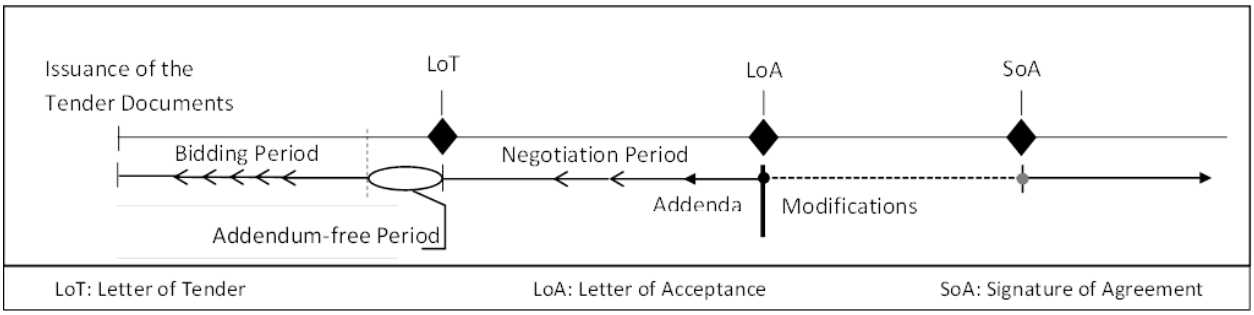

Figure 5. 2. The Location of the Addenda Occurring

However, we can assume that there are two stages of issuing addenda. The first stage includes addenda mailed to the prospective bidders before a number of days from the bid opening date. The prospective bidders must acknowledge receipt of all addenda in their bid form, as they are supposed to take it into consideration while tendering. And it has been specified that “Failure to do so may result in rejection of their bid”. (Colombia district 2007, p.6) The second stage, includes addenda issued after submittal of bids which primary results from clarifying questions raised by bidders during negotiations. (The Construction Specifications Institute 2005)

Additionally, several question and answer sessions contribute to the corrections and clarifications contributing to the addenda. In these session, clarifications of a clarification are given, resulting in a multilevel nesting of information. Also, an addendum may touch on more than one aspect at the same time. Therefore, after the agreement is executed, the relevant parts of

the addenda become part of the contract documents that the addenda touched upon. In that case, the relevant parts of any addendum have the effect of superseding the stipulations of the documents that are meant to modify.(Kovächs 2004).

5.4 Model Language

In this study, the first stage was to learn about the various clauses described in the standard contract documents, and the common-law rules, all of which were described in the current and previous chapters. In the second stage, we intend to provide the interpreter with enough facts based on the first stage to develop a reasonable understanding of the contract documents. Therefore, a holistic model language was composed to help avoid, or reduce the likelihood of, misinterpreting the contract documents which might lead to dispute.

The first part of the model language was inspired from the importance of reading the contract as a whole, in other words, in order to understand parts of the contract the interpreter needs to read it in its context rather than each part individually. For example, it was previously described that to be able to understand the work required, the participant must read the specifications and the drawings together by way of supplementing each other. The concept of this part coincides with many common-law rules such as “No Provision is treated as Useless Rule”. Therefore, by benefiting from the clauses specified in the various six standard conditions relating to this concept, a model language for part one was generated which is shown in Figure 5.3 along with their adopted source.

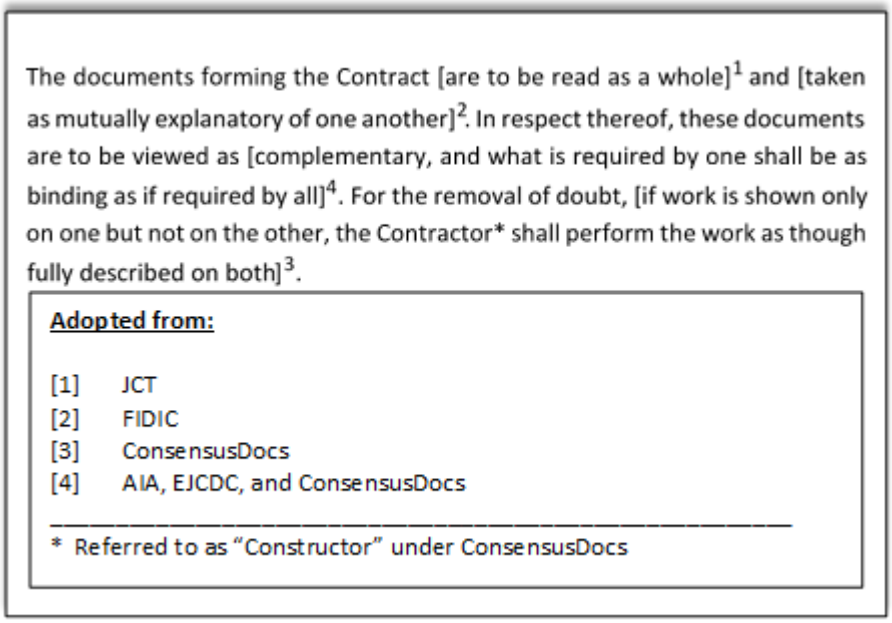

Figure 5. 3. Part One of the Model Language

The second part of the model language concentrates on the priority of documents. This part guides the interpreter in knowing the correlation between the documents and which document governs in case of defect. A priority of documents has the purpose of harmonizing conflicting provision (Thomas et al. 2014). This was supported by common law rules called general cannons which are explained fully in chapter four. Two of the general cannons are found inherent in the priorities given by the standard conditions, these were; specific terms should govern over general terms and written words should prevail over figures. Additionally, two common law rules were used that were not mentioned in the examined six sets of standard conditions, these were; written words shall prevail over preprinted words and earlier terms shall prevail over terms stated later in the same document.

Another concept was addressed in part two of the model language which is the incorporation of the addenda and modifications. Modifications document are the most highly

prioritized of all contract documents, as it has the possibility of adjusting the contract price and/or the contract time signed upon in the agreement. On the other hand, as specified above the addenda only affects the tender documents. Therefore, the content of the addendum supersedes the part relevant to it in the contract document.

In summary, by benefiting from the clauses specified in the various six sets of standard contract conditions relating to these concepts and the common-law rules, a model language for part two was generated. Figure 5.4 presents the linguistics of such aggregation, along with the source of origin.

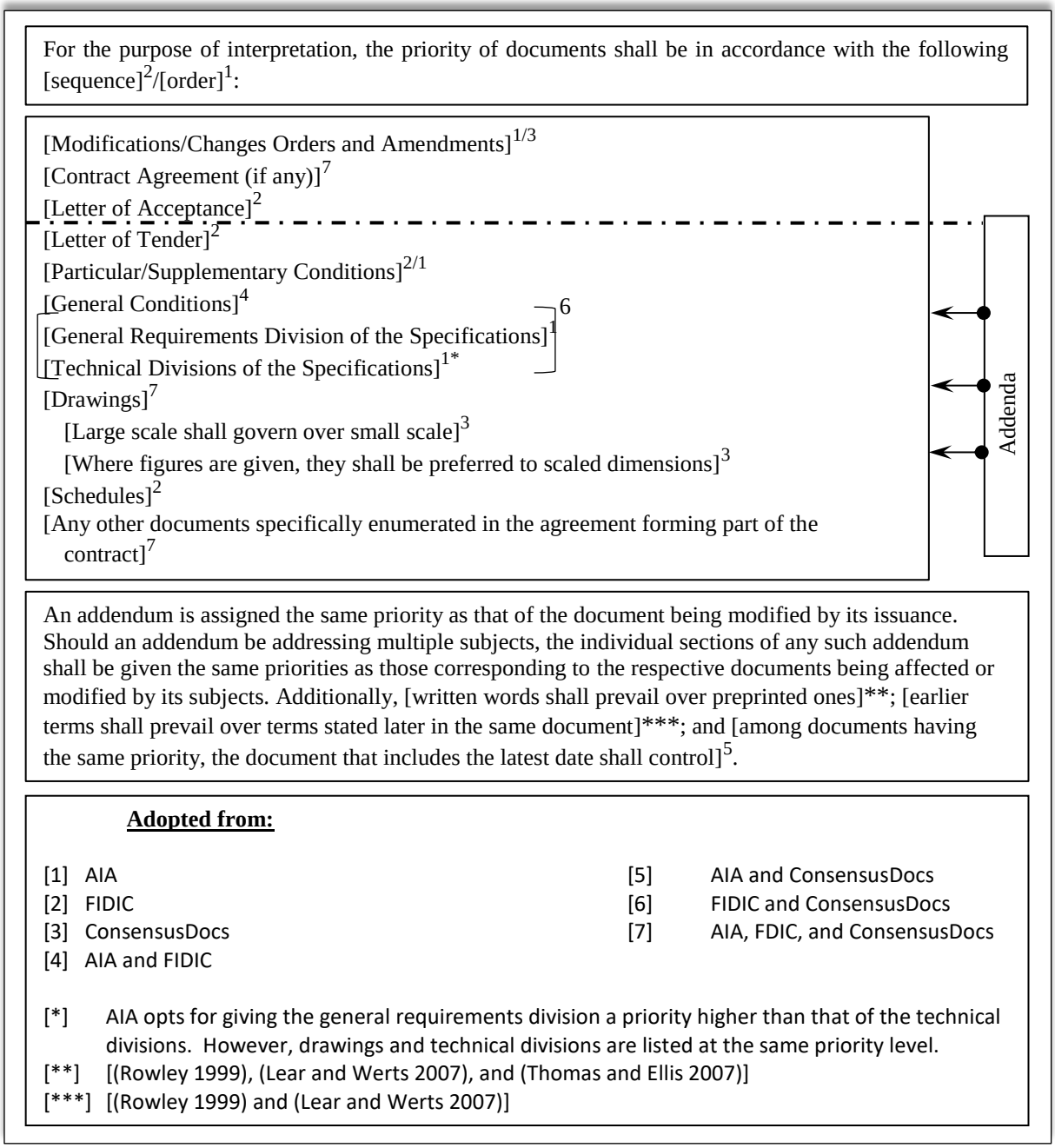

Figure 5. 4 Part Two of the Model Language

Finally, part three of the model language concentrates on the actions which the parties to the contract and the interpreter, shall perform when encountering a defect in the contract documents. This part touches upon the possible defects the parties may encounter, who is the individual responsible to report such defects, who is the individual entrusted to solve such defects and lastly the action taken by the interpreter. The linguistics of this part was acquired from the study done on the six standard conditions of contract provided in chapter three, which is presented in figure 5.5 along with from where it originated.

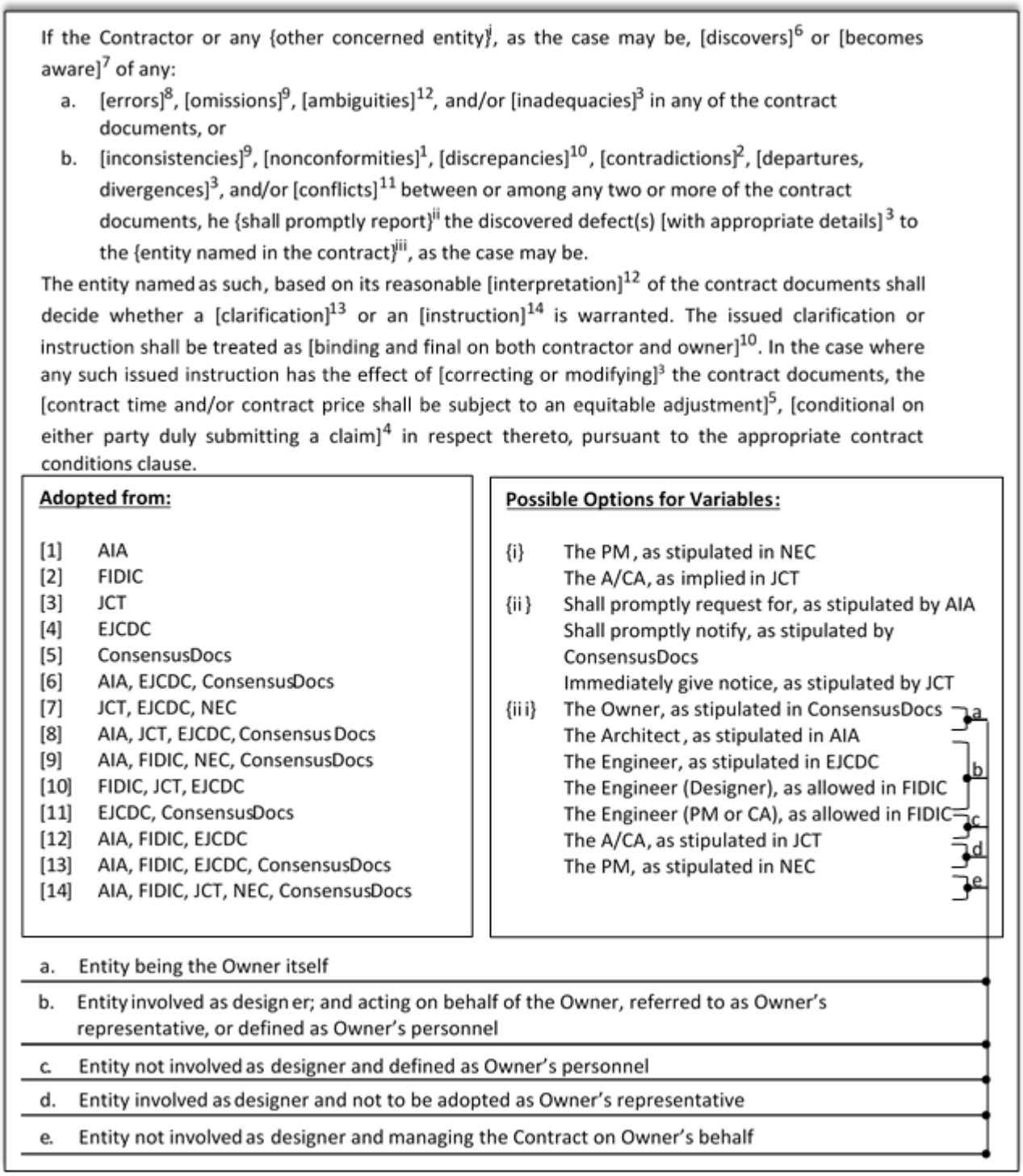

Figure 5. 5. Part Three of the Model Language

The process of creating the model language was devised in a way to allow the interpreter or the parties to the contract reduce the amount of disagreement resulting from misinterpretation.

Therefore, we proposed a process which teaches the individual how to read the contract documents, then understand their interrelation and finally the action needs to be taken when encountering a defect. Our approach was not to choose between the various clauses described in the six standard conditions, rather it was by taking the beneficial parts of each, parallel to taking into consideration the dissimilarities clauses and aggregate them to form a model language for interpretation.

The proposed model language is:

- The documents forming the Contract are to be read as a whole and taken as mutually explanatory of one another. In respect thereof, these documents are to be viewed as complementary, and what is required by one shall be as binding as if required by all. For the removal of doubt, if work is shown only on one document but not on the other, the Contractor shall perform the work as though fully described on both.

- For the purpose of interpretation, the priority of documents shall be in accordance with the following sequence/order:
  Modifications/Changes Orders and Amendments
  Contract Agreement (if any)
  Letter of Acceptance
  Letter of Tender
  Particular/Supplementary Conditions
  General Conditions
  General Requirements Division of the Specifications
  Technical Divisions of the Specifications
  Drawings
  Large scale governing over small scale
  Where figures are given, they shall be preferred to scaled dimensions
  Schedules
  Any other documents specifically enumerated in the agreement forming part of the contract-

  An addendum is assigned the same priority as that of the document being modified by its issuance. Should an addendum be addressing multiple subjects, the individual sections of any such addendum shall be given the same priorities as those corresponding to the respective documents being affected or modified by its subjects. Additionally, written words shall prevail over preprinted ones; earlier terms shall prevail over terms stated

later in the same document; and among documents having the same priority, the document that includes the latest date shall control"

- If the Contractor or any other concerned entity, as the case may be, discovers or becomes aware of any:
    a. errors, omissions, ambiguities, and/or inadequacies in any of the contract documents, or
    b. inconsistencies, nonconformities, discrepancies, contradictions, departures, divergences, and/or conflicts between or among any two or more of the contract documents, he shall promptly report the discovered defect(s) with appropriate details to the entity named in the contract, as the case may be.

  The entity named as such, based on its reasonable interpretation of the contract documents shall decide whether a clarification or an instruction is warranted. The issued clarification or instruction shall be treated as binding and final on both contractor and owner. In the case where any such issued instruction has the effect of correcting or modifying the contract documents, the contract time and/or contract price shall be subject to an equitable adjustment, conditional on either party duly submitting a claim in respect thereto, pursuant to the appropriate contract conditions clause.

5.5 Conclusion

In common practice, the contract has an important role in defining the interplay between the parties involved. Based on this importance, in this chapter we proposed a model language to be added to the contract to fill the gaps whenever encountered. The model language is made up of three parts; interpreting the document as a whole, prioritizing of contract documents and the route to be taken in case of defect. It was based on a review of the common-law rules and the six standard conditions, to seal any room for absence of guidance in case of defect or interpretation difficulty.

CHAPTERVI.

CONCLUSIONS

6.1 Summary of Work

In general, the act of interpretation by itself depends on the interpreter. In the field of construction, this can be applied to contract document interpretation. The owner uses a designer to translate the desired plan, which is implemented using a contractor, this interplay leaves room for requirements to be lost in translation. The preceding scenario is only one of the factors that can lead to disagreement when discussing contract documents. Hence, in this study a review of the literature was done to understand how to minimize the dispute resulting due to the lack of proper interpretation skills by the interpreter. This began with reviewing the six standard conditions of contract to identify the different players and their roles in contract document interpretation. Followed by the identification of significant entities; the Dispute Adjudication Board, mediators, adjudicators and their central role, if involved, in tackling dispute and their impact on resolution of disagreement. Subsequently, the objective of this study was to devise a model language extracted from clauses in the six standard conditions of contract to aid the interpreter to tackle any obstacles faced in contract documents. At the same time this language was molded by the review and filtration of the common-law rules of interpretation in order not to overwhelm the interpreter with a role exceeding his jurisdiction.

6.2 Major Conclusions

Through this research, we were able to extract the following: (1) the six sets of standard contract conditions are found to be tackling interpretation-related issues in varying ways. (2) The

potential defects described seem to fall under two deduced categories: those likely to be encountered in one document as opposed to those likely to involve more than one document. (3) The defect terminologies with the highest usage frequency are found to be “ambiguity” and error” in the former category and “inconsistency” and discrepancy in the latter one. (4) The participants entrusted in giving a wide array of prescribed binding resolutions cover a wide range that reflects varying degrees of association with design work, starting from an owner, on the one side, to a project manager, on the other side. (5) Out of the 35 synthesized set of rules, only up to 15 rules are viewed to be capable of being employed by the engineering professional involved in interpreting the construction documents. (6) The majority of these applicable rules are found to be of the operational-rule type. (7) Devising a proposed systematic process incorporating the deduced applicable rules (28 in total) for the use by the engineering professional in attempting an interpretation construction was found doable.(8) Commonalities and variations, alike, were found in the ways with which the examined six sets of standard conditions tackle the terms related to order of precedence of documents.(9) These were both instrumental in constructing a model language that better comprehensively cover the aspects considered critical to attempting the resolution of possible defects through an order-of-precedence clause.

6.3 Recommendations and Limitations

We recommend a number of things: The owner to ensure careful drafting of the contract documents in order to minimize the likelihood of encountering defects. The contract drafting party to recognize the possible spectrum of individuals likely to be assigned to give warranted interpretations or instructions. The interpreter should make sure that derived resolutions can be viewed as reasonable. The interpreter is bound to follow a systematic approach for deriving warranted resolutions, taking into account the fact that any such given interpretations, in addition

to possibly being challenged later on, can end up being legally binding. The drafting party shall opt to specify an order-of-precedence clause, in view of its perceived ability to serve an instrumental role in constructing reasoned interpretations. However, some of the limitations would be that the common-law rules framework may be presented differently by law-interpreters, such as lawyers or judges due to their differing scope of expertise. In addition, although the model language devised can be implemented to facilitate the act of interpretation, some researchers would suggest an alternative presentation of it.

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APPENDIX A

❖ Procedural Rules

Table 2. Documents and Evidence Surrounding the Contract

Documents that make up the entire agreement	Source	Description	Deductions	Extent of relevance	Explanation
Separate Contracts	S_1	"In the absence of anything to indicate a contrary intention, instruments executed at the same time, by the same contracting parties, for the same purpose, and in the course of the same transaction will be construed together, since they are in the eyes of the law one contract."	These rules allow the interpreter to set the boundaries of the contract constituents, that are used in making an interpretation	Capable of Employing	Because the interpreter is one of the participants present during the transaction of forming the separate contracts or reference documents then he is bound to employ these documents in order to make and interpretation.
Reference Documents	S_1	"Where a written contract refers to another instrument and makes the terms and conditions of such other instrument a part of it, the two will be construed together as the agreement of the parties."			
	S_5	"Matters incorporated into a contract by reference are as much a part of the contract as if they had been set out in the contract in haec verba."			

Table 3. Documents and Evidence Surrounding the Contract

Parol evidence rule	Source	Description	Deductions	Extent of relevance	Explanation
The Merger or Integration clause	S_2	"Construction contracts address the parol evidence issue by including a clause indicating that the writing is a complete and final statement of all terms of the contract. A merger or integration clause is intended to exclude evidence of contrary meaning or interpretation of contract terms that are within the "four corners" of the contract, or evidence of additional contract terms."	Option one: In the presence of a merger clause, parol evidence rule does not allow any extrinsic evidence to be used, however in some cases when there is an ambiguity in the contract, extrinsic evidence that does not vary or contradict the contract may be admissible as an aid. Option two: In the case a merger clause is included in the contract and as per the parol evidence rule no extrinsic evidence shall be used. However, if it is the particular case where a merger clause is included in the contract and certain aspects of the contract are ambiguous; then extrinsic evidence may be used given that they do not contradict or vary the contract.	Capable of Observing	The interpreter should comply with the merger clause that intends to preclude the courts from disregarding the parol evidence rule and allow parties to admit evidence not included in the contract. When there is an ambiguity, they shall also comply with the parol evidence rule that does not allow extrinsic evidence to add from or vary or contradict unambiguous written terms.
	S_3	"To manifest their intention to create a completely integrated agreement, parties will often include a "merger" or "integration" clause stating something to the effect that the writing contains or constitutes the entire agreement between the parties and supersedes any and all prior agreements, arrangements, or understandings between the parties relating to the subject matter, and that there are no oral understandings, statements, promises or inducements contrary to the terms of the writing. The effect of including such a clause, as a general rule, is to make evidence of prior or contemporaneous oral agreements and representations varying, modifying, or controlling the written agreement inadmissible."			
	S_5	Including such a writing would be to show a complete integration because the parties' intent can be seen from the face of the instrument.			
Parol Evidence Rule	S_1	"When contracting parties have reduced their agreement to writing, then all previous agreements and negotiations are believed to have been incorporated into that agreement. However, in limited cases involving misunderstandings or ambiguities, there may be an inquiry into the meaning attached to the words of a contract. To facilitate this inquiry, common law allows previous agreements and testimony to be used."			

S_2	"Traditionally the law has imposed rules that limit the use of external or parol evidence to vary or contradict the terms of a written contract, it is commonly known as parol evidence rule." The admissibility of parol evidence is whether the contract is a final and complete expression of the parties' agreement. "If a term is ambiguous, however, courts may admit extrinsic evidence concerning the parties' negotiation to ascertain the intent of the parties at the time of contracting."
S_3	"As a general rule, evidence regarding prior or contemporaneous oral agreements or prior written agreements is inadmissible when it is offered to add to, subtract from, vary, or contradict the terms of a fully integrated, unambiguous, written agreement."
S_4	"The basic concept is that extrinsic evidence is not admissible to add to, subtract from, vary or contradict a written agreement." "The rule does not apply when the written agreement is incomplete or there is a collateral oral agreement, or where there is ambiguity in the written document, or if there is a claim for rectification."
S_5	"When two parties have made a contract and have expressed it in a writing to which they have both assented as the complete and accurate integration of that contract, evidence, whether parol or otherwise, of antecedent understandings and negotiations will not be admitted for the purpose of varying or contradicting the writing." The rule excludes evidence of transactions occurring before or contemporaneous with the written agreement; it does not exclude evidence of subsequent transactions.

Table 4.Documents and Evidence Surrounding the Contract

Extrinsic evidence	Source	Description	Deductions	Extent of relevance	Explanation
Practical Construction / Subsequent conduct	S_1	The rule states: "A reasonable construction of an ambiguous contract by the parties thereto, although not conclusive, will be considered and accorded great weight, and usually will be adopted by the courts."	Evidence collected from the practical conduct of the parties during the execution of the contract.	Capable of Employing	The interpreter is capable of employing the party's practical construction rule because the evidence is in his custody to use in understanding what the parties had known at the time of their actions.
	S_3	The rule of practical construction examines the conduct of the parties during the execution of the instrument. Where mutual understanding or intent is expressed, that interpretation is adopted			
	S_5	"The rationale for this rule of construction is that the parties' intent at the time of the execution of the contract can be inferred from their actions."			
Oral Agreement Collateral to the Contract	S_1	"Where permitted by statutes, a written contract may properly be varied by oral agreements only where it is collateral and is not inconsistent with the express or implied conditions of a written contract."	Oral agreement can be before or after the signature of the contract, preliminary oral agreements can be used as evidence to modify the contract as long as it is not inconsistent with the express or implied conditions of the written agreement.	Guided By	The presence of the interpreter during the pre-contract negotiation gives him the luxury to know what the parties intended for the ambiguous word to mean, which he could be guided by when making his interpretation.
	S_5	"It should be noted that an oral agreement can modify a written contract as long as the contract is not covered by the statute of frauds."			
The Parties Prior Dealings	S_2	"If parties have dealt with each other previously, courts may look at their earlier behavior and practices to help interpret their current contract. Although evidence of an established pattern of prior dealings may be offered to aid a court, it cannot be used to vary or modify the clear, express terms of a written contract. Prior dealings may be used to determine what the parties intended by the otherwise ambiguous language or to supply a term omitted from the contract."	Earlier behaviors and practices done by the same contracting parties, is used as an evidence to aid the in making an interpretation, but cannot be used to modify the clear, express terms of a written contract.	Incapable of Employing	This kind of evidence is inaccessible by the interpreting party unless, the interpreter was the owner who had previously worked with the same contracting party and would propose an interpretation that might account for extra compensation and time.

Accounting for Surrounding Circumstances	S_3	"When construing the contract a court should take into consideration the circumstances surrounding the formation of the contract. In so doing, the court should place itself, as near as possible, in the exact situation of the parties when they executed the instrument, so as to determine their intentions, the objects to be accomplished, obligations created, time of performance, duration, mutuality, and other essential features."	When making an interpretation the interpreter needs to take into account the surrounding circumstances of the contract formation.	Guided By	The presence of the interpreter during the contract formation gives him the luxury to perceive what the surrounding circumstances were and what the parties intended for the ambiguity to signify. His knowledge could serve as guidance when making an interpretation.
	S_4	“It is a fundamental rule of contractual interpretation that the intention of the parties is to be determined as of the time when the contract is made”.			
	S_5	"Construction of a contract, refers to the process by which a court determines the meaning and proper effect of a contract by considering the circumstances surrounding the drafting of that contract."			

Table 5. Rules that control the interpretation

Controls	Source	Description	Deductions	Extent of relevance	Explanation
Contract Alteration	S_1	"A court cannot alter an existing contract or make a new contract for the parties, but can only construe the contract which they have made for themselves."	When the contract does not reflect the party's intention some courts have limited rights to rewrite or make a new contract.	Incapable of Employing	The interpreter has no jurisdiction in altering or reforming a contract.
	S_5	"Reformation is a judicial remedy available to correct a contract so that it properly reflects the parties' intention." "It is an extreme remedy that should be used cautiously by a court."			
Enforce Contract as Written	S_1	"The general rule states, In the absence of any ground for denying enforcement, a court must generally enforce a contract as made or written."	Courts need to enforce the contract as written to be able to interpret the contract, for it being written is one of the legal requirements.	Capable of Observing	The interpreter shall observe the contract as written.
	S_2	Compliance with legal requirements regarding the form of the contract is to have a written contract.			
Incorporate Existing Laws	S_1	"Contracts are to be governed by the law of the place where made, unless the parties clearly appeared to have had some other law in view."	Courts need to construe the contract using the laws of the place the contract was formed.	Incapable of Employing	The interpreter has no jurisdiction in judging how the contract is to be construed under the law and under what law.
	S_5	"Unless the contract states otherwise, the law applicable to the contract in effect at the time and place of the execution of the contract is as much a part of the contract as though it were expressly referred to and incorporated in its terms." "The rationale for the rule is based on an assumption that the parties had the legal landscape in mind when they formed their contract."			

Table 6. Standards of Interpretation

Standards of interpretation	Source	Description	Deductions	Extent of relevance	Explanation
Reasonable Interpretation	S_1	"A reasonable interpretation is preferred to one that is unreasonable. An interpretation should be given a meaning that would be adopted by a reasonably intelligent person acquainted with all operative usages and knowing all of the circumstances before and at the time of the making of the agreement."	An interpretation should be given a meaning that would be adopted by a reasonably intelligent person acquainted with all operative usages and knowing all of the circumstances before and at the time of the making of the agreement.	Capable of Employing	The interpreter is to employ a reasonable interpretation, being a reasonable intelligent and logical person familiar with the facts and circumstances surrounding the contract.
	S_2	"Contract language is interpreted as it would be understood by a reasonably intelligent and logical person familiar with the facts and circumstances surrounding the contract."			
Reason and Equity of Interpretation	S_1	"An interpretation that is equitable to both parties is preferred." "The court does not ignore or alter harsh or even seemingly unreasonable terms that are clearly written into the contract because ignoring the foolishness of a contractual undertaking is not within the function of the court."	An interpretation should give a reasonable result and avoid leading to an absurd or harsh one, unless the terms are express and lend themselves to no other reasonable interpretation.	Capable of Observing	The interpreter being an intelligent and logical person shall be able to avoid an interpretation that yields an unreasonable results, unless impartiality is not required.
	S_3	"Courts should give the words of an instrument a reasonable construction, where that is possible, rather than an unreasonable one, and should avoid constructions that give words a meaning they will not bear. A construction leading to an absurd, harsh, or unreasonable result should be avoided, unless the terms are express and lend themselves to no other reasonable interpretation. "			
	S_5	"An interpretation of a contract or agreement which yields unreasonable results, when a probable and reasonable construction can be adopted, will be rejected."			

Liberal versus strict interpretation	S_1	"Interpretation can be either strict or liberal. In practice, courts do not narrowly or loosely interpret a contract to violate its obvious purpose or to relieve a party of an obligation. Courts look at the language used and determine its realistic limitations."	An interpretation should not be lenient or strict; it shall rather reflect the realistic limitations of the language used.	Guided By	The interpreter is able to relate to the context of the matter in dispute.
Legality and Validity	S_1	"If two interpretations render two reasonable meanings, with one offering legal effect and the other not, the former interpretation is adopted; and, if a provision has two meanings and one validates the contract, whereas the other voids the contract, the interpretation that validates the agreement is selected."	An interpretation should give a legal affect to the contract and the meaning that validates the agreement.	Incapable of Employing	The interpreter has no jurisdiction in judging whether an interpretation validates or voids the contract.
	S_3	"If a contract or contractual provision is susceptible to two reasonable constructions, one of which comports with statutory law, regulation, common law, or public policy and one of which does not, the court should construe the contract or contractual provision in such a way as to make it legal."			
	S_5	"When a contract is open to two constructions one making it legal and the other illegal adopt the construction that makes it legal."			
Promoting Performance	S_1	"An interpretation that renders performance possible is preferred to an interpretation that makes performance impossible. No matter how clear the words may appear, courts should not adopt a meaning that will render performance impossible."	Regardless of how clear the words are, the adopted interpretation shall render performance possible.	Capable of Employing	The interpreter is able to judge whether performance is possible when a particular interpretation is being constructed.
Implied terms	S_3	Implied terms are generally permitted in only two types of cases; when necessary to effectuate the intent of the parties as evidenced by the agreement as a whole and when they arise by operation of law.			
Good Faith and Fair Dealing	S_1	"Contracts imply good faith and fair dealing between the parties. The standard of preference states that if an interpretation implies bad faith or fraud against one of the parties, and the other interpretation does not, the court should choose the	Imposes an obligation on both parties' to act in	Guided By	These principles are core to the ethics governing the engineering profession.

		interpretation that promotes good faith and fair dealing."	decency, fairness and reasonableness.		
	S_2	"Has been explained as an implied covenant that imposes obligations on both contracting parties that include the duty not to interfere with the other party's performance and not to act so as to destroy the reasonable expectations of the other party regarding the fruits of the contract."			
	S_3	"Good faith is the faithfulness of an agreed purpose between two parties, a purpose which is consistent with justified expectations of the other party. The breach of good faith is bad faith characterized by some conduct which violates standards of decency, fairness or reasonableness."			
Spearin Doctrine	S_2	This rule was articulated by the United States Supreme Court in United States v. Spearin: [I]f the contractor is bound to build according to plans and specifications prepared by the owner, the contractor will not be responsible for the consequences of defects in the plans and specifications. The Spearin doctrine can serve as both a shield and sword for a part that is not responsible for furnishing the design.	Implies that the contractor will not be responsible for the consequences of defects in the plans and specification that are prepared by the owner.	Guided By	The interpreter can be guided by this rule unless a relevant contract clause containing express words is to be otherwise observed.
Duty to Cooperate	S_2	In a case the United States Court of Claims concluded: " [I]t is however, an implied provision of every contract, whether it be one between individual and the Government, that neither party to the contract will do anything to prevent performance thereof by the other party or that will hinder or delay him in its performance."	Implies that neither party will place any obstacle in the way of the happening of such event, and where a party is himself the cause of the failure he cannot rely on such condition to defeat his liability.	Guided By	The interpreter has no jurisdiction in judging whether an implied "duty to cooperate" has been fulfilled.
	S_3	"Where a contract is performable on the occurrence of a future event, there is an implied agreement that neither party will place any obstacle in the way of the happening of such event, and where a party is himself the cause of the failure he cannot rely on such condition to defeat his liability."			

❖ Operational Rules

Table 7. Primary Rules

Rules	Source	Description	Deductions	Extent of relevance	Explanation
Plain Meaning rule	S_1	"Words employed in a contract will be assigned their ordinary meaning unless it is shown that the parties used them in a different sense. This rule is invoked where the evidence clearly suggests that the word was to be used in an ordinary sense." "However, the rule is not to be used where it allows evidence of a contrary meaning to be excluded. The determination of whether the language is to be given its ordinary meaning or some other meaning, or if it is ambiguous, is made by the court. Recent cases indicate that courts consider trade custom and industry practice only where it is conclusive."	Certain words in the contract can be given their ordinary/common usage meaning unless the word has a technical or a trade meaning.	Capable of Employing	The interpreter is able to distinguish words which do not lend themselves to having technical or trade meanings.
	S_2	Terms will be given the meanings generally ascribed to them unless the parties defined a term otherwise or intended for a term to have a technical meaning.			
	S_3	"Courts should give each word and phrase in a written agreement its plain, ordinary, common place meaning, unless doing so would cause a result that is contrary to the clearly manifested intention of the parties or to law or public policy."			
	S_5	"The plain and ordinary meaning of a term is one that a person of average intelligence, knowledge, and experience would deem reasonable." If faced with choosing between a commonplace definition of a word and a more technical definition, Missouri courts will often choose the more			

		commonplace definition unless it plainly appears that the technical meaning is intended to apply.			
Patent Ambiguity	S_1	"A patent ambiguity is an obvious or drastic conflict within the contract." "Without regard to the type of ambiguity, a court will seek to determine the parties' intentions from the entire agreement and its surrounding circumstances. As a rule, In case of ambiguity, a contract is generally given that meaning which a party knew, or had reason to know, was in accordance with the other party's understanding." "Courts have held that a failure to inquire often results in the denial of a claim."	When there is a drastic or obvious ambiguity the interpretation is given against the contractor because he is held responsible for not inquiring about the ambiguity during the question and answer period. The contract is given that meaning which party knew or had reason to know, was in accordance with the other party's understanding.	Capable of Employing	The interpreter is able to access the question and answer period, and determine the fact that the contractor did not inquire about the matter in dispute.
	S_2	"An obviously (or "patently") ambiguous contract provision will not be construed against its drafter if the non-drafting party fails to seek clarification of that ambiguity before submitting its proposal or bid." "A bidder or offeror generally has an obligation to seek clarification of patent ambiguities or inconsistencies that appear in the bid or proposal documents."			
	S_3	"An ambiguity appears upon the face of the instrument, and courts would think its interpretation is disclosed by the codicil in this case."			
Interpretation as a Whole	S_1	"A contract must be construed as a whole and, whenever possible, effect will be given to all its parts." "Common sense suggests that each provision in a contract is included for a reason and should therefore be given equal consideration." "Courts read and consider the "four corners" of the agreement before arriving at a conclusion of the meaning of any particular provision. In view of one court, it is necessary to consider all parts and provisions of a contract in order to determine the	The contract documents are to be interpreted by reading all documents together including reference documents, in order to give full effect to the purpose and intention of the	Capable of Employing	The interpreter has the capabilities of identifying all parts of the contract that are relevant to a matter requiring interpretation.

		meaning of any particular part, or of particular language, as well as of the whole."	parties and for the documents to be construed as a whole.		
	S_2	"Each part of the agreement should be examined with reference to all other parts, because one clause may modify, limit, or illuminate another." "An interpretation that leaves portions of the contract meaningless will generally be rejected."			
	S_3	"The language used in a single clause or sentence is not to control as against the evident purpose and intention of the contracting parties as shown by the whole document." "If a contract consists of more than one document, or if a contract incorporates another document by reference, then all documents comprising the contract or transaction should be read together to give full effect to the intent of the parties."			
	S_4	"The normal rules of construction of a contract require that the various clauses of a contract cannot be considered in isolation but must be given an interpretation that takes the entire agreement into account."			
	S_5	"When determining the parties' intent, Missouri courts look to the entire agreement and consider it as a whole."			
The Order of Precedence	S_1	Many contracts have "order-of precedence clauses that establish an order of priority among the various documents when an ambiguity occurs between documents." "They are used as a substitute for the rule against the drafter."	When the ambiguity remains unsolved and irrevocable the interpreter can use the order of precedence to identify which document govern, in order to resolve the conflict. It is used as a substitute for the	Capable of Employing	The bases of the priorities assigned to the contract documents are generally (highly) technical.
	S_2	"When two or more conflicting provisions cannot be harmonized, the rules of contract interpretation establish an order of precedence that may resolve the conflict." "In the absence of an order-of-precedence clause, general common law rules of precedence will apply."			

			rule against the drafter.		
Ruling Against the Drafter / The Contra Proferentem Rule	S_1	"An interpretation may lead to more than one reasonable interpretation. In this situation, a court must apply a tiebreaker rule. Common law provides the following rule: In choosing among reasonable meanings of a promise or agreement or a term thereof, that meaning is generally preferred which operates against the party who supplies the words from whom a writing otherwise proceeds."	When the ambiguity remains unsolved the terms are construed strongly against the party responsible for drafting them. For this rule to apply, the contract must have at least two reasonable interpretation, one of the two parties must have chosen the ambiguous language and the non-drafting party must demonstrate that it relied on its interpretation.	Incapable of Employing	The interpreter can be biased in attempting to adopt this rule, likely being the party who drafted or chosen the ambiguous language.
	S_2	"The risk of ambiguous contract language generally belongs to the party responsible for drafting the ambiguity." "This rule of contract interpretation applies unless the non-drafting party knew of or should have known of the ambiguity and several requirements must be met for this principle to apply: (1) There must truly be an ambiguity - that is, the contract must have at least two reasonable interpretation. A non-drafting party's interpretation need not be the only reasonable interpretation for this principle to apply. (2) One of the two parties must have drafted or chosen the ambiguous contract language. (3) The non-drafting party must demonstrate that it relied on its interpretation."			
	S_3	"Ambiguous contract terms are construed most strongly against the party responsible for drafting them."			
	S_4	"This rule should only be applied as a last resort or where the party seeking to rely on it did not have an opportunity to modify the terms of the contract"			
	S_5	The rule of contra proferentem "is that ambiguous language in a contract should be construed against the party responsible for the ambiguity." "This rule is employed only as a last resort when other			

available data bearing on the agreement shed no light on actual intent or meaning."

Table 8. Secondary Rules for Ambiguous Language

Rules	Source	Description	Deductions	Extent of relevance	Explanation
Technical Meaning	S_1	"Technical words are to be ordinarily taken in a technical sense, unless they are clearly used in a different sense. Courts interpret technical language from the viewpoint of how a person in the profession or business with which it is associated would normally understand it. Courts also look at local custom and usage, and that meaning, if conclusive, is adopted."	Technical words are interpreted from the viewpoint of how a person in the profession or business with which it is associated would normally understand it. Technical words are given their technical meaning unless the particular word is defined by the parties.	Capable of Employing	The interpreter has the know-how experience and to determine the interpretation of technical words.
	S_2	"Technical word will be given its ordinary meaning in the industry unless it is shown that the parties intended to use it in a different sense."			
	S_3	"If the writing stipulates the meaning of a particular term, the stipulated meaning, rather than the plain meaning, will prevail." "Likewise, a technical term or term-of-art will prevail over a common-usage definition where the circumstances so dictate."			
	S_5	"When construing an insurance contract, a court will use the plain and ordinary meaning of a term instead of a technical definition unless it plainly appears that the technical meaning is intended to apply." "If the contract defines a particular term, Missouri courts will typically accept the parties' agreed definition."			
Consistent Meaning	S_1	"Where there is nothing in the context to indicate otherwise, words used in one sense in one part of the contract are deemed to have been used in the same sense in another part of the instrument." "Consistency rule is supported and further defined by the rule of associated words."	Words used in one sense in one part of the contract are to be used in the same sense in another part of the instrument, unless the context indicates otherwise.	Capable of Employing	The interpreter shall be able to consistently use words in the same sense across the contract and judge where the context indicates otherwise.

Rule of Associated words/ Noscitur a Sociis (Take Words in Their Immediate Context)	S_1	"The meaning of words in a contract may be indicated or controlled by those words with which they are associated." The rule is further defined by two Latin maxims: the rule of Ejusdem generis and the rule of Expressio unius.	Words may be indicated or controlled by those words with which they are associated therefore, words should be construed in their context		
	S_3	"A court should construe or interpret a word in the context of the terms immediately preceding and following it." The rule is further defined by two Latin maxmis: The rule of Ejusdem generis and the rule of Expressio unius"			
	S_5	Generally, noscitur a sociis "is used to convey the concept that the meaning of a term can be enlarged or restricted by referring to the context in which the term is used. "The rule has no application where the particular words describe variant and differing things or concepts."			
Ejusdem Generis	S_1	"A general term joined with a specific one will be deemed to include only things that are like (of the same genus as) the specific one."	"A general term joined with a specific one will be deemed to include only things that are like (of the same genus as) the specific one." (S1)	Capable of Employing	Assuming that these requirements are of technical nature, the interpreter is capable of pinpointing what properties of a general term are like those of a specific term.
	S_3	"When an enumeration of specific things is followed by some more general word or phrase, then the general word or phrase will usually be construed to refer only to things of the same general nature or class as those specifically enumerated."			
	S_5	"Directs that specific enumeration is useful in determining the scope and extent of more general words."			
Expressio Unius	S_1	"If one or more specific items are listed, without any more general or inclusive terms, other items although similar in kind are excluded."	"If one or more specific items are listed, without any more general or inclusive terms, other items although	Capable of Employing	Assuming that these requirements are of technical nature, the interpreter is capable of limiting his interjection to the specific requirements that are so expressly included.
	S_2	"It is also a general rule of contract interpretation that when a specific requirements or definitions are itemized and spelled out, anything not expressly included is deemed to be excluded"			

S_3	"When an enumeration of specific things is not followed by some more general word or phrase, then things of the same kind or species as those specifically enumerated are deemed to be excluded."	similar in kind are excluded." (S1)
S_5	"This rule may be used to decide whether a contract that contains a list of specific terms should be read to encompass anything broader than that specifically listed."	

Table 9. Secondary Rules for Ambiguous Structure

Rules	Source	Description	Deductions	Extent of relevance	Explanation
Reconcile Terms	S_1	"Where there is an apparent repugnancy between two clauses or provisions of a contract, it is the province and duty of the court to find harmony between them and to reconcile them if possible."	The court should reconcile two clauses of a contract that are apparently repugnant.	Incapable of Employing	Outside the interpreter's jurisdiction.
No Provision is treated as Useless	S_1	"If possible, an interpretation will not be given to one part of a contract which will annul another part of it."	When making an interpretation, no word or provision is rendered repugnant, senseless, ineffective, meaningless, or incapable of being carried out consistently with all other provisions of the contract.	Capable of Observing	The interpreter's tasks of construing the contract as a whole shall satisfy that no provision is rendered useless.
	S_3	"Courts should construe contracts, if possible, so that no word or provision is rendered repugnant, senseless, ineffective, meaningless, or incapable of being carried out in the overall context of the transaction consistently with all of the other provisions of the contract."			
	S_4	“Every effort should be made by a court to find a meaning, looking at substance and not mere form, and that difficulties in interpretation do not make a clause bad as not being capable of interpretation, so long as a definite meaning can properly be extracted."			
	S_5	"Missouri courts will adopt an interpretation of a contract that gives effect to all of the contract‘s provisions when possible. Each provision is construed in harmony with the others to give each provision a reasonable meaning and avoid an interpretation that renders some provisions useless or redundant."			
Supply Omitted Terms	S_1	"The rules states: When the parties to a bargain, sufficiently defined to be a contract, have not agreed to a term which is essential to a determination of their rights and duties, a term which is reasonable in the circumstances is supplied by the court."	When parties have not agreed to an essential omitted term courts may supply a reasonable one.	Incapable of Employing	Outside the interpreter's jurisdiction.

Table 10. Operational General Rules

Rules	Source	Description	Deductions	Extent of relevance	Explanation
Specific Terms should govern over General Terms	S_1	"Where there are, in a contract, both special and general provisions relating to the same thing, the special provisions prevail." "This rule is to be applied sparingly, cautiously, and only when absolutely necessary."	When there is inconsistency between a specific provision and a general provision in the same document or among documents, the specific provision qualifies or takes precedence over general provision.	Capable of Employing	The interpreter is capable of mechanically allowing specific terms to govern general terms.
	S_2	In case of inconsistency between a term written specifically and a general term, "the specific term usually will be viewed as creating an exception to the general terms and usually will be given precedence over the more general terms."			
	S_3	"If a general provision and a specific provision in the same contract or other instrument conflict or are inconsistent, the specific provision controls or qualifies the meaning of the general."			
	S_5	"When faced with a contract that has a general provision conflicting with a more specific provision, Missouri courts will enforce the more specific provision."			
Written Words should prevail over Preprinted Words	S_1	"Where there is inconsistency, matter deliberately added by the parties to a contract form must prevail. Thus, written or typewritten matter, or even stamped matter, will ordinarily prevail over printing, and handwriting will prevail over typewriting."	When the preprinted, typewritten and handwritten provisions conflict each other, handwritten provisions governs typewritten, and typewritten	Capable of Employing	The interpreter is capable of mechanically allowing typewritten words to prevail over preprinted ones and handwritten words over typewritten ones.
	S_2	"As a general rule, handwritten terms take priority over conflicting typewritten or preprinted terms. Likewise, typewritten contract terms take precedence over preprinted contract terms."			

	S_3	"Except where the parties clearly manifest a contrary intent, handwritten contract provisions are favored when they conflict with or alter typewritten or printed provisions, and typewritten provisions are favored when they conflict with or alter printed provisions."	provisions govern preprinted.		
	S_5	"Missouri courts recognize when a contract‘s language is internally inconsistent is that typed or handwritten provisions will prevail over inconsistent preprinted form language."			
Written Words should prevail over Figures	S_1	"Where there is an ambiguity between the words and drawings, the words normally govern. The rule states: Where words and figures in a contract are inconsistent, the words govern."	Where words and figures in a contract are inconsistent, the words govern.	Capable of Employing	The interpreter is capable of mechanically allowing written words to prevail over figures.
Favor Terms stated Earlier Over Terms stated Later in the Same Document	S_3	"Where two provisions of an instrument cannot be otherwise harmonized, terms stated earlier in an agreement are favored over subsequent terms, with one noteworthy exception: The latter of two clauses of a will that are in irreconcilable conflict is the latest expression of the intention of the testator or testatrix where there is no other guide, and should prevail."	When two provisions of a contract are in conflict, the provision that appears in the contract first will prevail.	Capable of Employing	The interpreter is capable of mechanically allowing the provision that appears in the contract first to prevail.
	S_5	"Missouri courts have recognized the rule of construction that, when two provisions of a contract are in conflict, the provision that appears in the contract first will prevail. “Missouri courts have noted that this rule is an expedient which a court will very reluctantly employ, usually resorted to when the subsequent clause has been carelessly introduced into the contract."			