

# AN INVESTIGATION OF THE DOCUMENT BIAS BETWEEN THE GCC 2004 AND THE GCC 2010

by

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## DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the authorship owner thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

SIGNATURE: .....

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## ABSTRACT

Construction projects have developed over several decades through the advancement of technology, increased scarcity of resources and the ever increasing pressure of time and cost constraints. Because of new technology and modern construction methods, construction projects have become increasingly complex. These complexities inherently bring new risks that must be dealt with accordingly.

A contract is the primary method through which risks are allocated between the Employer and the Contractor. The conditions allocating the risks legally bind both parties to accept responsibility of those risks, therefore it is important to understand the aspects of law that has bearing on contracts. In this thesis the scope is restricted to construction contracts.

Because of the role that a contract plays, especially in the construction industry context, it is important to know the requirements of a modern contract to ensure the successful completion of projects and the continued sustainability of Employer-Contractor relationships. In South Africa, the Construction Industry Development Board (CIDB) is a body that monitors developments in the construction industry. The CIDB has the authority to enforce legislation to ensure that contracts conform to a standard that protects the interests of both the Employer and the Contractor.

One of the procurement documents endorsed by the CIDB is the General Conditions of Contract for Construction Works published by the South African Institution of Civil Engineering (SAICE). The first edition of the GCC was published in 2004 (*GCC 2004*) and a revised second edition was published in 2010 (*GCC 2010*).

In this study the GCC 2010 and the GCC 2004 are compared first through a content analysis, to establish the effect the revisions on the bias of the document (or favouring a particular party) and then by means of a survey. The objectives are:

- a. To test whether revisions to the GCC from the 2004 edition to the 2010 edition resulted in a change in bias (assuming it exists) and compliance with the requirements of the modern contract;
- b. To determine the extent and effect of alterations to standard clauses of the GCC 2010 on the way in which the contract favours a particular party;
- c. Providing recommendations for future revisions that would potentially improve project success, relationship building and reduce the need for significant alterations to the standard clauses.

Although a construction contract is undertaken between the Employer and the Contractor, the Consultant (who is not party to the contract) commonly drafts the contract on behalf of the Employer.

The findings of the study show that the revision had a significant impact on improving the clarity of the roles of the Employer and the Contractor. A marginal improvement was found in the area of payment operating mechanisms. The perceived fairness of the document neither increased nor decreased. Clauses on claims and disputes and risk and related matters were the two areas that respondents identified as having the most bias that may be detrimental to the success of a construction project.

Despite survey respondents finding the GCC 2010 procurement document to be fair, clauses are still altered by Employers (probably through Consultants) resulting in a biased contract favouring the Employer. Employers and Consultants should thus be educated more on bias and fairness in contracts and on the implications of shifting more risk to Contractors by altering clauses.

Ultimately, the success of any construction project is dependent on the attitudes of the participants. Even the most fair procurement document is not a substitute for a relationship built on honesty and trust.

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# TABLE OF CONTENTS

<b>Declaration .....</b>	<b>i</b>
<b>Abstract .....</b>	<b>ii</b>
<b>Acknowledgements .....</b>	<b>iv</b>
<b>Table of contents .....</b>	<b>v</b>
<b>List of figures .....</b>	<b>xi</b>
<b>List of tables.....</b>	<b>xiv</b>
<b>List of abbreviations .....</b>	<b>xv</b>
<b>Definitions .....</b>	<b>xvi</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 General introduction.....	3
1.1.1 <i>What is construction risk?</i> .....	3
1.1.2 <i>Use of contracts to allocate risk</i> .....	5
1.1.3 <i>Development of Standard Form Contracts in South Africa</i> .....	6
1.1.4 <i>The need for revisions of standard procurement documents</i> .....	7
1.2 Problem definition .....	8
1.2.1 <i>International trends</i> .....	8
1.2.2 <i>South African trends</i> .....	9
1.2.3 <i>Relationships in the construction industry</i> .....	13
1.2.4 <i>Conclusion</i> .....	15
1.3 Research objectives.....	16
1.4 Research design (Methodology) .....	16
1.4.1 <i>Research design followed in this study</i> .....	17
1.5 Data gathering .....	17
1.5.1 <i>Data sources</i> .....	17
1.5.2 <i>Primary data gathering</i> .....	18

1.5.3	<i>Secondary data gathering</i> .....	20
1.6	Data analysis and interpretation.....	21
1.7	Presenting results .....	21
1.8	Research Challenges.....	21
1.9	Document layout.....	22
<b>2</b>	<b>Literature review</b> .....	<b>24</b>
2.1	South African Institution of Civil Engineering.....	24
2.1.1	<i>Development of The General Conditions of Contract for Construction Works</i>	25
2.2	Construction Industry Development Board .....	26
2.3	Construction risks .....	26
2.3.1	<i>Construction risk types</i> .....	26
2.3.2	<i>Perspectives of risk</i> .....	27
2.4	Research done on procurement documents.....	30
2.4.1	<i>Contract comparison</i> .....	30
2.4.2	<i>Use of pro forma contracts in the mining industry</i> .....	30
2.5	Synthesis of Literature Review.....	31
<b>3</b>	<b>Fundamentals of law</b> .....	<b>33</b>
3.1	What is law? .....	33
3.2	Primary sources of law.....	33
3.2.1	<i>Legislation</i> .....	34
3.2.2	<i>Common law</i> .....	34
3.2.3	<i>Judgements or precedents</i> .....	35
3.3	Main branches of law .....	35
3.3.1	<i>Public law</i> .....	35
3.3.2	<i>Private law</i> .....	35
3.4	Legal capacity.....	36
3.5	Types of rights .....	37
3.6	Origins of rights and obligations .....	37

3.7	Relevance of fundamentals of law to the study .....	37
<b>4</b>	<b>Law of contract.....</b>	<b>38</b>
4.1	What is a contract? .....	38
4.1.1	<i>Unilateral and bilateral contracts</i> .....	39
4.2	Legal requirements .....	39
4.2.1	<i>Consensus</i> .....	39
4.2.2	<i>Contractual capacity</i> .....	40
4.2.3	<i>Formalities</i> .....	41
4.2.4	<i>Certainty</i> .....	41
4.2.5	<i>Possibility of performance</i> .....	41
4.2.6	<i>Legality</i> .....	42
4.3	Consequences of invalid contracts.....	43
4.4	Breach of contract.....	44
4.5	Termination of contracts.....	45
4.6	Chapter synthesis .....	47
<b>5</b>	<b>The modern construction contract .....</b>	<b>48</b>
5.1	Approaches to contracting .....	48
5.1.1	<i>Transactional approach</i> .....	48
5.1.2	<i>Relational approach</i> .....	49
5.2	How construction contracts differs from other contracts .....	49
5.2.1	<i>Provision for changes in construction contracts</i> .....	49
5.2.2	<i>Ownership in construction contracts</i> .....	50
5.2.3	<i>Size and duration of construction contracts</i> .....	50
5.3	Contracting and pricing strategies.....	51
5.3.1	<i>Design and build</i> .....	52
5.3.2	<i>Develop and construct</i> .....	52
5.3.3	<i>Design by Employer</i> .....	52
5.3.4	<i>Management contract</i> .....	52



5.3.5	<i>Construction management</i> .....	53
5.4	Modern contract requirements .....	53
5.5	Three pillars of the modern contract.....	54
5.6	Aspects of construction contracts.....	55
5.7	Chapter synthesis .....	57
5.7.1	<i>Legal requirements</i> .....	57
5.7.2	<i>Three pillars of the modern contract</i> .....	58
5.7.3	<i>Cooperative problem solving</i> .....	59
5.7.4	<i>Aspects of construction contracts</i> .....	60
<b>6</b>	<b>Content analysis</b> .....	<b>62</b>
6.1	Physical layout.....	62
6.2	Clause-by-clause analysis .....	64
6.2.1	<i>Overall results</i> .....	64
6.2.2	<i>Heading 1: GENERAL</i> .....	65
6.2.3	<i>Heading 2: BASIS OF CONTRACT</i> .....	65
6.2.4	<i>Heading 3: ENGINEER</i> .....	66
6.2.5	<i>Heading 4: CONTRACTOR'S GENERAL OBLIGATIONS</i> .....	66
6.2.6	<i>Heading 5: TIME AND RELATED MATTERS</i> .....	67
6.2.7	<i>Heading 6: PAYMENT AND RELATED MATTERS</i> .....	71
6.2.8	<i>Heading 7: QUALITY AND RELATED MATTERS</i> .....	73
6.2.9	<i>Heading 8: RISKS AND RELATED MATTERS</i> .....	75
6.2.10	<i>Heading 9: TERMINATIONS OF CONTRACT</i> .....	76
6.2.11	<i>Heading 10: CLAIMS AND DISPUTES</i> .....	78
6.3	Chapter synthesis .....	81
<b>7</b>	<b>Industry survey</b> .....	<b>84</b>
7.1	Survey overview .....	84
7.2	Survey shortcomings .....	85
7.3	Survey content.....	85

7.4	Survey challenges.....	88
7.5	Survey distribution .....	88
7.6	Survey analysis.....	89
7.7	Survey results .....	93
7.7.1	<i>Response rate and respondent demographic.....</i>	93
7.7.2	<i>Procurement document use and preference .....</i>	99
7.7.3	<i>GCC 2010 vs. GCC 2004.....</i>	108
7.7.4	<i>GCC 2010.....</i>	118
<b>8</b>	<b>Conclusion and recommendations.....</b>	<b>138</b>
8.1	Conclusion .....	138
8.1.1	<i>Objective A: .....</i>	138
8.1.2	<i>Objective B: .....</i>	140
8.1.3	<i>Objective C: .....</i>	145
8.1.4	<i>Conclusive summary.....</i>	146
8.2	Recommendations for further study .....	147
<b>9</b>	<b>Bibliography .....</b>	<b>150</b>
<b>10</b>	<b>Appendices.....</b>	<b>154</b>
10.1	Appendix A: Online Survey.....	154
10.1.1	<i>Survey information.....</i>	154
10.1.2	<i>General information .....</i>	155
10.1.3	<i>(Contractor) Procurement documents .....</i>	156
10.1.4	<i>(Employer) Procurement documents.....</i>	158
10.1.5	<i>GCC 2010 vs GCC 2004 .....</i>	160
10.1.6	<i>GCC 2010 page.....</i>	162
10.1.7	<i>Open feedback page.....</i>	164
10.1.8	<i>Optional additional participation .....</i>	165
10.2	Appendix B: Clause-by-clause analysis .....	166
10.2.1	<i>Heading 1: GENERAL .....</i>	166

10.2.2	<i>Heading 2: BASIS OF CONTRACT .....</i>	168
10.2.3	<i>Heading 3: ENGINEER.....</i>	169
10.2.4	<i>Heading 4: CONTACTOR'S GENERAL OBLIGATIONS .....</i>	170
10.2.5	<i>Heading 5: TIME AND RELATED MATTERS .....</i>	173
10.2.6	<i>Heading 6: PAYMENT AND RELATED MATTERS.....</i>	179
10.2.7	<i>Heading 7: QUALITY AND RELATED MATTERS.....</i>	183
10.2.8	<i>Heading 8: RISKS AND RELATED MATTERS .....</i>	186
10.2.9	<i>Heading 9: TERMINATION OF CONTRACT.....</i>	188
10.2.10	<i>Heading 10: CLAIMS AND DISPUTES .....</i>	189

## LIST OF FIGURES

Figure 1.1 Six step research process (Polonsky & Waller, 2005) .....	2
Figure 1.2 Construction Lifecycle showing project phases (Marais, 2012).....	5
Figure 1.3 Contract document use .....	11
Figure 1.4 Contract document use excluding building projects.....	12
Figure 1.5 Contractual relationships.....	13
Figure 1.6 Operational relationships.....	14
Figure 3.1 Order of authority .....	34
Figure 3.2 Branches of Law .....	35
Figure 4.1 Bilateral reciprocal contract .....	39
Figure 4.2 Void contract .....	43
Figure 4.3 Voidable contract .....	43
Figure 4.4 Contract with sub-contractor not necessarily void.....	44
Figure 5.1 Contracting and pricing strategies (CIDB, 2010).....	51
Figure 5.2 Three pillars of the modern contract .....	54
Figure 5.3 The triple constraint (Haughey, 2013) .....	56
Figure 5.4 Legal requirements .....	58
Figure 5.5 Relational and Transactional components to project success.....	60
Figure 5.6 Aspects of construction contracts.....	61
Figure 6.1 New and revised clauses .....	64
Figure 6.2 Time and related matters new and revised clauses.....	67
Figure 6.3 Payment and related matters new and revised clauses.....	71
Figure 6.4 Quality and related matters new and revised clauses.....	73
Figure 6.5 Risks and related matters new and revised clauses .....	75
Figure 6.6 Terminations of contract new and revised clauses .....	76
Figure 6.7 Claims and disputes new and revised clauses .....	78
Figure 6.8 Number of new and revised clauses.....	81
Figure 6.9 Summary: Clause-by-clause analysis – All new and revised clauses .....	82
Figure 6.10 Summary: Clause-by-clause analysis.....	82
Figure 7.1 Example: Procurement document use distribution.....	92
Figure 7.2 Survey invitation responses .....	93
Figure 7.3 Sample group vs Surveys completed .....	94
Figure 7.4 Respondent classification.....	94
Figure 7.5 Respondents years of experience .....	95
Figure 7.6 Employer classification.....	95

Figure 7.7 Employer experience .....	96
Figure 7.8 Consultants classification .....	96
Figure 7.9 Consultant experience .....	97
Figure 7.10 Contractor classification .....	97
Figure 7.11 Contractor Experience.....	98
Figure 7.12 Contractors' CIDB grade .....	98
Figure 7.13 Overall procurement document use.....	99
Figure 7.14 Procurement use according to Contractors .....	100
Figure 7.15 Procurement document use according to Employers.....	100
Figure 7.16 Procurement document use by Employers according to Consultants .....	101
Figure 7.17 Procurement document use: CII compared to survey results.....	102
Figure 7.18 Contractor survey response distribution per contractor financial grade 2011 (CIDB, 2013).....	103
Figure 7.19 Procurement document preference rating .....	105
Figure 7.20 Procurement document preference .....	106
Figure 7.21 Procurement document use vs preference .....	107
Figure 7.22 Roads and earthworks projects .....	109
Figure 7.23 Building projects.....	110
Figure 7.24 Specialist projects .....	110
Figure 7.25 Other projects .....	111
Figure 7.26 Unit price contracts .....	112
Figure 7.27 Lump sum contracts.....	113
Figure 7.28 Cost plus contracts.....	113
Figure 7.29 Fairness rating .....	114
Figure 7.30 Clarity of roles rating .....	115
Figure 7.31 Payment operating mechanisms rating .....	115
Figure 7.32 GCC 2010 vs GCC 2004: Project types .....	116
Figure 7.33 GCC 2010 vs GCC 2004: Pricing strategies.....	117
Figure 7.34 GCC 2010 vs GCC 2004: Three pillars .....	118
Figure 7.35 Alterations to clauses in the GCC 2010 .....	120
Figure 7.36 Overall bias of GCC 2010 without alterations .....	122
Figure 7.37 Bias of Time and related matters.....	123
Figure 7.38 Latent defects bias .....	123
Figure 7.39 Delays bias .....	123
Figure 7.40 Bias of payments and related matters .....	124
Figure 7.41 Payment bias .....	125
Figure 7.42 Scope changes bias.....	125

Figure 7.43 Insurance and guarantees bias .....	125
Figure 7.44 Bias of quality and related matters .....	126
Figure 7.45 Bias of risks and related matters .....	126
Figure 7.46 Risk allocation bias .....	127
Figure 7.47 Design responsibilities bias .....	127
Figure 7.48 Bias of Claims and disputes bias.....	128
Figure 7.49 Overall bias of GCC 2010 with alterations .....	130
Figure 7.50 Bias of Time and related matters.....	130
Figure 7.51 Latent defects bias .....	131
Figure 7.52 Delays bias .....	131
Figure 7.53 Bias of payments and related matters .....	131
Figure 7.54 Payment bias .....	132
Figure 7.55 Scope changes bias .....	132
Figure 7.56 Insurance and guarantees bias .....	132
Figure 7.57 Bias of quality and related matters .....	133
Figure 7.58 Bias of risks and related matters .....	133
Figure 7.59 Risk allocation bias .....	134
Figure 7.60 Design responsibilities bias .....	134
Figure 7.61 Bias of Claims and disputes bias.....	134
Figure 7.62 Summary: Alterations to clauses of the GCC 2010.....	135
Figure 7.63 Summary: Overall bias .....	136
Figure 7.64 Summary: Bias of the GCC 2010 without alterations.....	137
Figure 7.65 Summary: Bias of the GCC 2010 with alterations.....	137
Figure 8.1 Conclusion: Time and related matters .....	141
Figure 8.2 Conclusion: Payment and related matters .....	142
Figure 8.3 Conclusion: Quality and related matters .....	142
Figure 8.4 Conclusion: Risk and related matters .....	143
Figure 8.5 Conclusion: Claims and disputes .....	144

## LIST OF TABLES

Table 1.1 Type of contract document used for different project types 2011 (Marx, 2013) .....	9
Table 1.2 Amendments to standard form contracts including building projects (Marx, 2013)10	
Table 1.3 Average Procurement document use for projects in 2011 .....	10
Table 6.1 Numbering structure comparison.....	63
Table 6.2 Comparative statistics .....	63
Table 7.1 Example: Procurement document use dataset .....	89
Table 7.2 Example: Procurement document use processed dataset .....	90
Table 7.3 Example: Procurement document use – percentages .....	90
Table 7.4 Example: Procurement document use – percentages without N/A .....	91
Table 7.5 Example: Results table.....	91
Table 7.6 Example: Procurement document use – distribution.....	92
Table 7.7 Alterations to clauses in order of frequency .....	121

## LIST OF ABBREVIATIONS

ASCE	American Society of Civil Engineers
BIFSA	Building Industries Federation (South Africa)
CESA	Consulting Engineers of South Africa
CIDB	Construction Industry Development Board
CII	Construction Industry Indicators
CMP	Construction Engineering Management Programme
FIDIC	<i>Fédération Internationale Des Ingénieurs-Conseils</i> (International Federation of Consulting Engineers)
GCC	General Conditions of Contract
ICE	Institution of Civil Engineers
JBCC	Joint Building Contracts Committee
LADREC	Legal Affairs and Dispute Resolution in Engineering and Construction
MBSA	Master Builders South Africa
NEC	New Engineering Contracts
NFBTE	National Federation of Building Trade Employers
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
RBS	Risk Breakdown Structure
SAICE	South African Institution of Civil Engineering



## DEFINITIONS

Consultant	Representative of the Employer responsible for the design and/or project management of a project
Contract	Legally binding agreement between the Contractor and Employer
Contractor	Person responsible for executing the Works
Employer	The owner or sponsor of the project who appoints the Contractor, Consultant and other representatives acting on his behalf and is responsible for the funding
Engineer	See <i>Consultant</i> . (Please note that the term Engineer and Consultant are only equivocated for ease of use in this thesis because some contracts refer to the Employer's representative as the "Consultant" and other contracts the representative is referred to as the "Engineer".)
Works	Work to be carried out and completed as set out in the Contract

## Introduction

# 1 INTRODUCTION

Construction projects have developed over several decades through the advancement of technology, increased scarcity of resources and the ever increasing pressure of time constraints. Because of new technology and modern construction methods, construction projects have become increasingly complex. These complexities inherently bring new risks that must be dealt with accordingly.

A contract is the primary method through which risks are allocated between the Employer and the Contractor. The conditions allocating the risks legally bind both parties to accept responsibility of those risks, therefore it is important to understand the aspects of law that has bearing on contracts. In this thesis the scope is restricted to construction contracts.

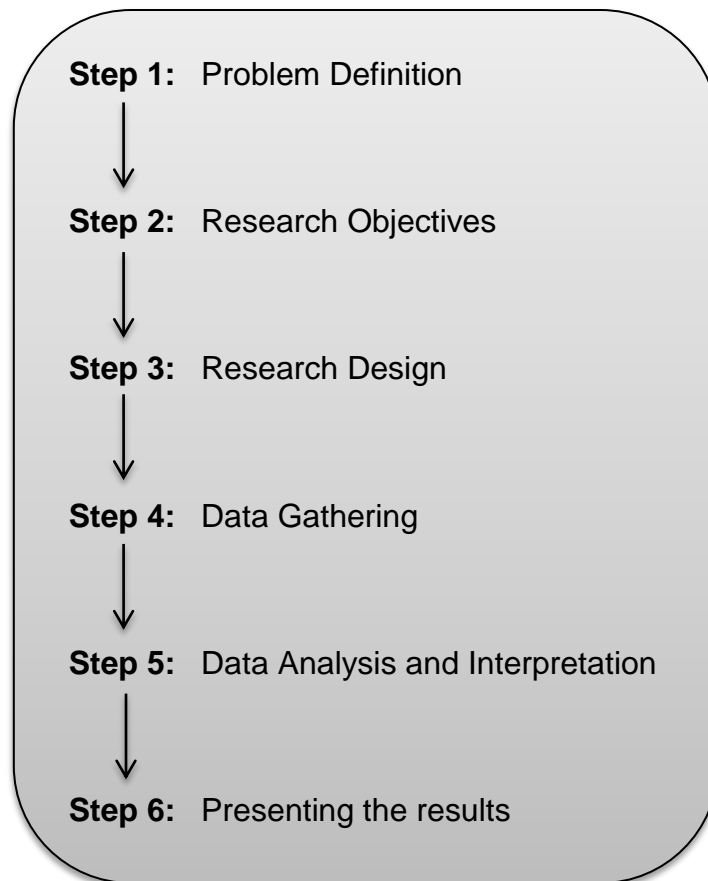
In this study the GCC 2010 and the GCC 2004 are compared first through a content analysis, to establish the effect the revisions have on the bias of the document (or favouring a particular party) and then by means of a survey. The objectives are:

- a. To test whether revisions to the GCC from the 2004 edition to the 2010 edition resulted in a change in bias (assuming it exists) and compliance with the requirements of the modern contract;
- b. To determine the extent and effect of alterations to standard clauses of the GCC 2010 on the way in which the contract favours a particular party;
- c. Providing recommendations for future revisions that would potentially improve project success, relationship building and reduce the need for significant alterations to the standard clauses.

## Introduction

The first section of this chapter provides a general introduction to construction risk and the use of contracts in allocating risk. A brief history on the development of standard form contracts in South Africa is also given.

The body of the chapter explains the individual steps that were followed to successfully complete this study. The research process followed was similar to that suggested by Polonsky and Waller (2005) as illustrated in **Figure 1.1**.



**FIGURE 1.1 SIX STEP RESEARCH PROCESS (POLONSKY & WALLER, 2005)**

Although the model is primarily aimed at guiding business students' research, the principles are also applicable in the engineering field. Furthermore, this research touches on disciplines other than engineering in that it is largely exposed to the law fraternity with the legal aspects of contracts and it is also complemented to some extent by the inclusion of good business practice.

## Introduction

It is thus fitting that a research model is followed that is not restricted to the engineering field, which can be used in a variety of environments.

The final sections of the chapter discuss the challenges encountered during the research process and the layout of the thesis.

### 1.1 GENERAL INTRODUCTION

The construction industry is one in which various types of **risks are a reality that contractors, consultants and employers are faced with** in the execution of each project. Every project carries with it an inherent amount of risk. **The primary method of allocating risk is the use of a contract**, which amongst others defines the allocation of the different risks to the different parties.

**As technology has improved, so too has the complexity of construction projects.** This in turn has promoted the development of contracts to satisfy legal requirements as well as to protect the contract participants' interests.

#### 1.1.1 WHAT IS CONSTRUCTION RISK?

It is believed that the word "risk" was derived in the 17<sup>th</sup> century from a Spanish sailors' term meaning *"to run into danger or go against a rock"* (Jannadi & Almishari, 2003). The Anglicised spelling started appearing in insurance transactions around the second quarter of the 18<sup>th</sup> century (Flanagan & Norman, 1993). The Oxford English Dictionary (2013) defines risk as: *"(Exposure to) the possibility of loss, injury, or other adverse or unwelcome circumstance; a chance or situation involving such a possibility."*

In light of the origin of the word "risk", it is clear that it has been used in a vast number of contexts, thus making it difficult to discern a definition encompassing the entire scope of risk. By narrowing the context to the construction industry, the following definitions and characteristics are commonly accepted:

According to Flanagan and Norman (1993), construction projects have an abundance of risk which contractors deal with and owners pay for.

Risk depends on the uniqueness of a project as well as on the experience of the project team. Two concepts are involved in determining the magnitude of risk, namely the likelihood of an event occurring and the impact it would have should it occur (Nicholas & Steyn, 2010). In other words *Magnitude of risk = Likelihood x Impact*.

## Introduction

In a study attempting to find reasons for Contractors not practically applying risk management techniques in construction projects, Klemetti (2006) defined risk as “an uncertain event or condition that results from the network form of work, having an impact that contradicts expectations. An event is at least partially related to other actors in a network.”

Klemetti further states that although risk is extensively studied, there is still no conclusive and common concept definition as risk is often only perceived as an unfavourable consequence. Such a definition has two misleading perceptions. Firstly, professionals are in agreement that risk needs to be viewed as being both potentially favourable and unfavourable. Secondly, risk is not only associated with singular events, but relates to future project conditions. Future project conditions are difficult to predict in early stages of a project's lifecycle and conditions can change over the duration of the project.

For the purpose of this thesis, the following definition and understanding of risk shall be used:

***An event or condition of circumstances during a construction project lifecycle that places the affected party in an unfavourable position with the possibility of incurring financial liability and/or an increase in time required to complete the project.***

Favourable events or conditions in the context of this study will be regarded as opportunity and not risk.

## Introduction

The project lifecycle is not limited to the construction period and precedes and succeeds the duration of construction as seen in **Figure 1.2**. The parties' risk profiles may vary over the lifecycle period.

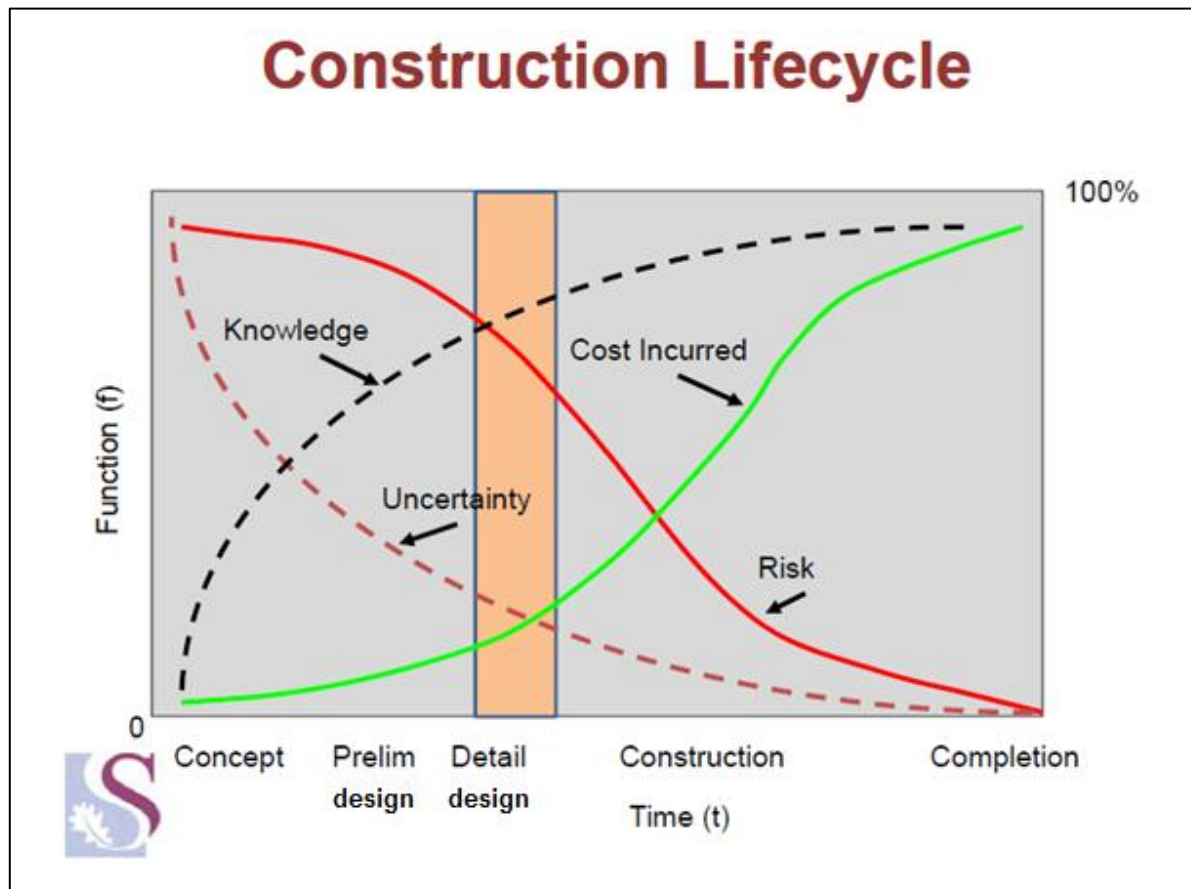


FIGURE 1.2 CONSTRUCTION LIFECYCLE SHOWING PROJECT PHASES (MARAIS, 2012)

Risk management has become an increasingly important topic in the construction industry and many techniques have developed over the years to manage risks individually and collectively.

Although it is necessary to have an overall understanding of risk management, explaining the topic is not within the scope of this thesis.

### 1.1.2 USE OF CONTRACTS TO ALLOCATE RISK

**A contract is a voluntary agreement between two parties** and it is the primary method used to set out responsibilities, requirements and risk allocation. Most professionals today would not engage in a construction project without the having a sound contract in place (Amod, 2007).

## Introduction

Heaphy (2013) explains that the selection of contract type (target contract, priced contract, or cost reimbursable contract) governs payment methods and an element of risk allocation.

Construction project risks can be broadly divided into **performance risks** and **cost risks** and in this context all contracts allocate risk. The contract type depends on how much risk the Employer is willing to take, as not all contracts allocate risk equitably or in such a way that the authority to manage the risk is allocated along with the risk itself (Zaghloul & Hartman, 2002).

In the construction industry the contract document is typically called a **procurement document** as the aim of the contract is that the Contractor delivers a complete product to the Employer to successfully conclude the contract.

### 1.1.3 DEVELOPMENT OF STANDARD FORM CONTRACTS IN SOUTH AFRICA

The South African construction industry is quite sophisticated and closely linked to developments in more developed countries such as Australia and the UK (Barnes-Webb et al., 2012).

In 1909 the Royal Institute of British Architects (RIBA) standard form contract was introduced by architectural firms, but it was **only in the late 1920's that preparation for the use of standard conditions of contract was initiated in South Africa**. The RIBA contracts were used throughout until the early 1930's when a major revision was made to the standard form contract in 1931. The newly established Institute of South African Architects, the Chapter of South African Quantity Surveyors and National Federation of Building Trade Employers (NFBTE) prepared new documents referred as "Standard Building Contract Forms" that were published in 1932 (Lipshitz & Malherbe, 1979, pp.1-5).

The NFBTE was later renamed as the Building Industries Federation (South Africa) BIFSA. BIFSA underwent a second name change in 2004 to the Master Builders South Africa (MBSA) as it is known today.

There were two types of "Standard Building Contract Forms" that made distinction between **"Quantities Contracts"** and **"Lump Sum Contracts"**. These were used and reprinted without amendment until 1950. The first revision was made in 1952 with subsequent revisions made periodically until 1977 (Lipshitz & Malherbe, 1979).

## Introduction

In the opening address of the BIFSA Seminar on Conditions of Contract (1972), Mr A. Howard stated that the signing of contracts being a mere formality was something that belonged in the past. Due to the sophistication and complexities of modern contracting practice it is imperative that all parties involved fully understand their responsibilities. Knowledge of these responsibilities would not only result in projects running smoothly, but would also eliminate costly disputes.

The **SAICE General Conditions of Contract for Construction Works** would also have started being developed in this era. There is limited information available about the SAICE documents, the earliest information available indicating that the GCC fourth edition was published in 1972 and the fifth edition published in 1982. The GCC's development is discussed in more detail in **section 2.1.1**.

The Joint Building Contracts Committee (JBCC) was established in 1984 and published its first edition of procurement documents in 1991. The JBCC documents were specifically prepared to be used for building projects. The JBCC series 2000 was published in 1997 to replace the previous document. Since 1997 the JBCC series 2000 has had six revisions with the latest edition published in 2013.

In June 2004 the Construction Industry Development Board first published the ***Standard for Uniformity in Construction Procurement*** in the Government Gazette (CIDB, 2010). The GCC 2004 was deemed to be in line with the standard and was included as one of the four standard procurement document suites that comply with the requirements of the standard. After six years of use in the industry the GCC 2004 was revised in 2010 to better comply with the standard and to address shortcomings experienced with the GCC 2004.

Many major companies and government bodies have developed their own standard procurement documents for use in construction projects. However, these do not necessarily comply with the *Standard for Uniformity in Construction Procurement* and the use of these documents is thus not in line with the aim of the CIDB of standardising construction procurement.

### 1.1.4 THE NEED FOR REVISIONS OF STANDARD PROCUREMENT DOCUMENTS

The construction industry is constantly evolving with new technologies entering the market and alternative methods of construction being developed. With these developments, the related parties become more specialised in their respective fields and have less exposure to practices not core to their business.



## Introduction

New legislation and amendments to existing legislation also forces standard procurement documents to be revised to ensure that the conditions comply with the relevant legal requirements. Examples of legislation in South Africa that has brought about revisions are the ***Occupational Health and Safety Act, Construction Regulations, CIDB regulations*** and more recently the ***Consumer Protection Act***.

A study by Hymes (2011) indicated that general conditions of contract led to construction claims and disputes as frequently as erroneous drawings, deficient technical specification and disputes related to jurisdiction matters.

Having an independent body, such as the CIDB, to monitor and endorse specific procurement document suites would reduce the number of claims and disputes that arise from contract conditions.

## 1.2 PROBLEM DEFINITION

This section discusses international and local trends in construction procurement and the importance of understanding legal aspects in the construction industry. The different relationships in the construction industry are mentioned, in which contractual relationships are highlighted.

The problem statement is then given that forms the foundation of the research motivation.

### 1.2.1 INTERNATIONAL TRENDS

Knowledge and understanding of **contracts, procurement law** and **claims and disputes** are becoming increasingly important for professionals, in the engineering industry, who are not primarily practicing law. That is why the Institution of Civil Engineers (ICE) added the ICE Construction Law Quarterly to their arsenal of publications in 2011 (Lal, 2011).

Similarly, the American Society of Civil Engineers (ASCE) launched a new journal in 2009 titled the Journal of Legal Affairs and Dispute Resolution in Engineering and Construction (LADREC). In the launch issue, the editor, Amarjit Singh, recognises the **importance of legal affairs in the engineering and construction industry** and how a minor legal mistake could have disastrous consequences for a company (Singh, 2009).

## Introduction

In 1983, Maher identified and emphasised the importance of construction contract studies in technical educational programmes offered by education institutions. He further states that **the amount of time professionals in the construction industry spend dealing with contract matters is not realistically reflected in the time spent educating students during their study period (Maher, 1983).**

Egan (1998) states that **competitive tendering should be replaced with long term relationships** based on performance measurement. Mutual interdependence, workflow continuity and a more stable environment are some of the requirements for such relationships to be successful. Furthermore, if the culture in the construction industry were to move away from the current price competition and operation under inadequate profit margins and relationships between Contractors and Employers are based on mutual trust, **the use of formal procurement documents could potentially become obsolete.**

### 1.2.2 SOUTH AFRICAN TRENDS

Since 2003 the CIDB has published annual reports on the current situation in the South African construction industry. This report is known as the **Construction Industry Indicators (CII)**. **Table 1.1** shows some of the most recent results at the time of publishing.

TABLE 1.1 TYPE OF CONTRACT DOCUMENT USED FOR DIFFERENT PROJECT TYPES 2011 (MARX, 2013)

Project Type	Percentage Contract Document Type usage for each Project Type				
Contract Document	GCC	NEC	JBCC	FIDIC	Other
<b>Residential Building</b>	11%	0%	81%	8%	0%
<b>Non-residential Building</b>	9%	3%	78%	2%	8%
<b>Civil Works</b>	81%	2%	4%	11%	2%
<b>Mechanical Works</b>	64%	4%	14%	18%	0%
<b>Electrical Works</b>	34%	28%	19%	14%	5%
<b>Special Works</b>	55%	0%	45%	0%	0%

The distribution of the GCC suggests that it was used in a variety of project types. Only in the Building sector was it not used as the preferred procurement document. This may be attributed to the fact that the JBCC has been specifically set up for use in the building sector.

## Introduction

When considering the amendments to standard contract documents, the CII shows that roughly one in four contract documents are amended when the GCC and NEC contracts are used. The JBCC was amended approximately once in every three times and half of the projects where FIDIC was used, had amended contract documents, as seen in **Table 1.2** below.

TABLE 1.2 AMENDMENTS TO STANDARD FORM CONTRACTS INCLUDING BUILDING PROJECTS (MARX, 2013)

Contract Document Type	GCC	NEC	JBCC	FIDIC	Other
Percentage Projects with Contract Document significantly amended	23%	25%	29%	51%	7%

**Table 1.3** shows the use of the different procurement documents for projects in 2011. The average was taken across all project types and compared to the average of projects excluding residential and non-residential building projects.

There was a significant change when building projects were excluded. This was because the JBCC procurement document had been used in 81% of residential building projects and 78% of non-residential projects.

TABLE 1.3 AVERAGE PROCUREMENT DOCUMENT USE FOR PROJECTS IN 2011

Contract Document Type	GCC	NEC	JBCC	FIDIC	Other
Average including building projects	42%	6%	40%	9%	3%
Average excluding building projects	59%	9%	21%	11%	2%

## Introduction

It is clear that the GCC and JBCC were the preferred procurement documents for projects in 2011. The use of the GCC tends to be on the increase when data from previous CII reports is used to show the use of documents of recent years, as **Figure 1.3** illustrates.

Data from projects in 2006 to 2011 was available with the exception of 2008, that was not available from the CIDB.

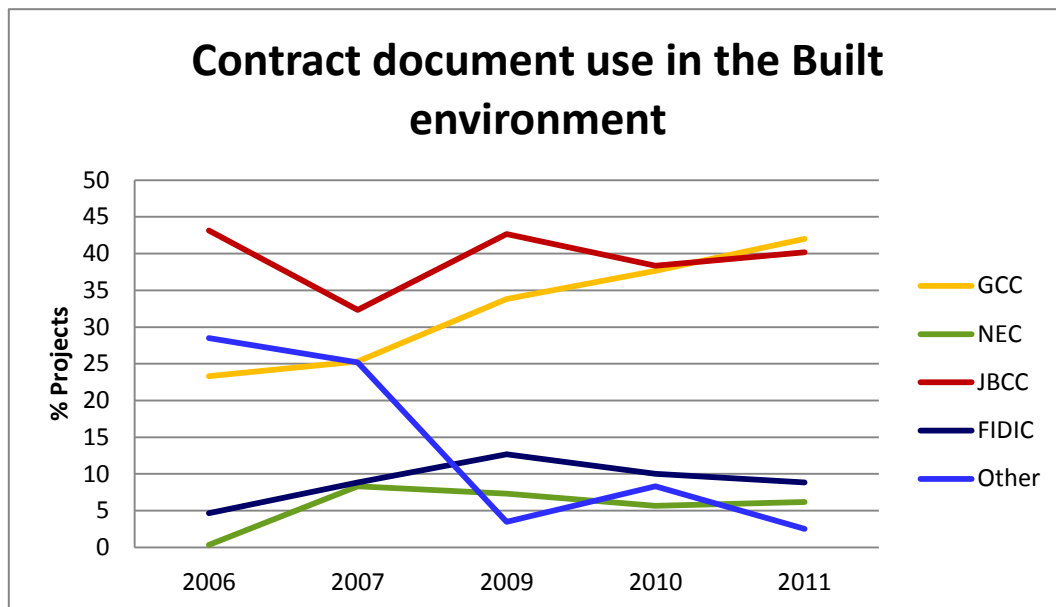


FIGURE 1.3 CONTRACT DOCUMENT USE

## Introduction

**Figure 1.4** shows the documents used in projects excluding building projects and shows that the JBCC was used significantly less when compared to the results from **Figure 1.3**. The GCC has an ever increasing tendency of being used in projects. The increasing use of the GCC in the built environment provides a justifiable reason for focussing research on the GCC instead of any of the other procurement documents.

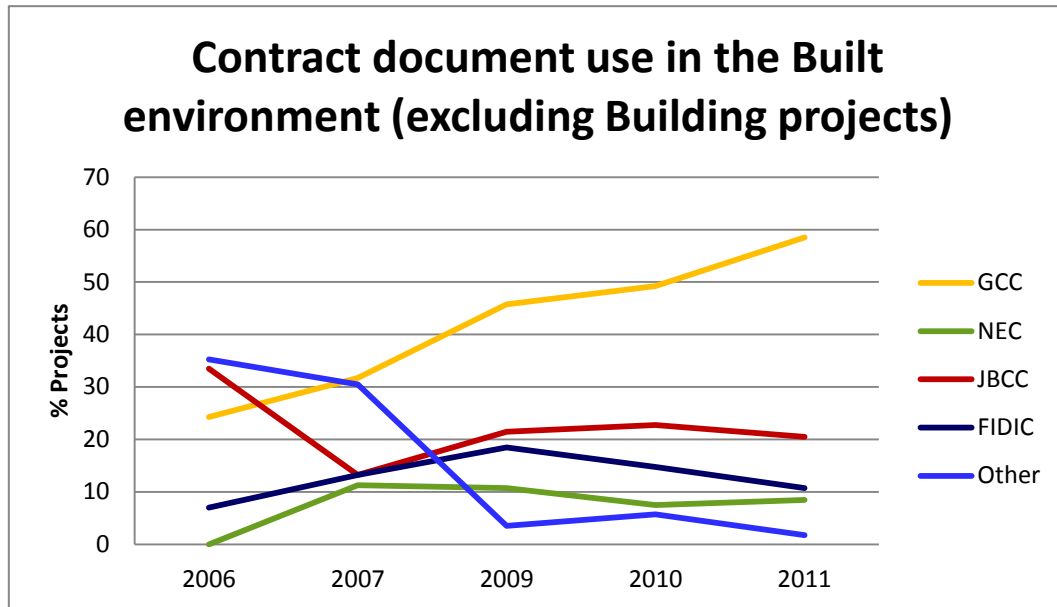


FIGURE 1.4 CONTRACT DOCUMENT USE EXCLUDING BUILDING PROJECTS

## Introduction

### 1.2.3 RELATIONSHIPS IN THE CONSTRUCTION INDUSTRY

In the construction industry there are three types of relationships: **Contractual**, **Operational** and **Informational**.

The primary **contractual relationship** found in the construction industry is between the Employer and the Contractor (Wong, 1999). Secondary contractual relationships also commonly found are between the Employer and the Consultant and between the Contractor and Subcontractor(s). The black arrows in **Figure 1.5** represent the different contractual relationships.

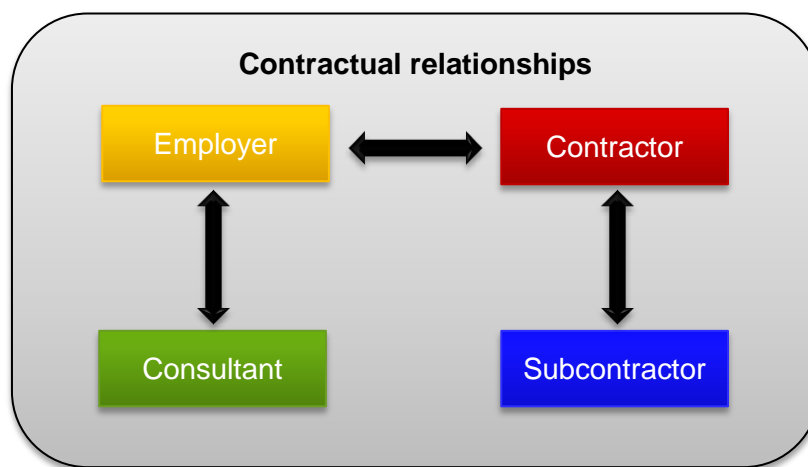


FIGURE 1.5 CONTRACTUAL RELATIONSHIPS

## Introduction

Rameezdeen and Gunarathna (2012) states that the relationship between the Contractor and the Consultant is only a functional or **operational relationship**. Typically, these relationships come into being when a third party acts on behalf of a party who has a contractual relationship with another party. The most significant operational relationship is the relationship between the Consultant and the Contractor, shown as the diagonal arrow in **Figure 1.6**.

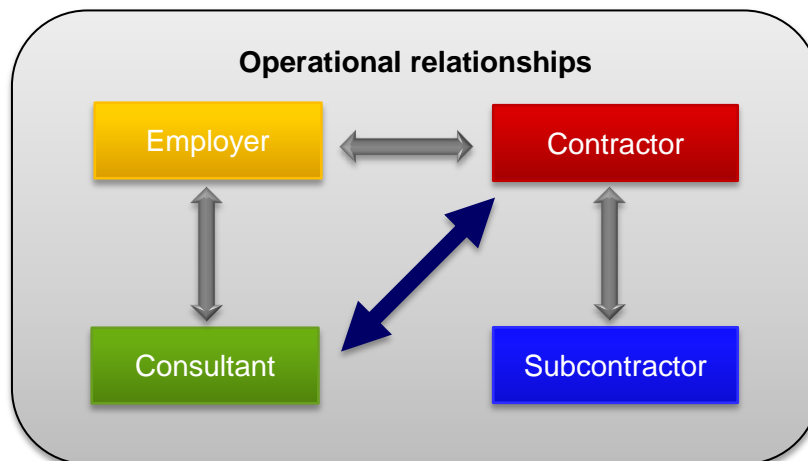


FIGURE 1.6 OPERATIONAL RELATIONSHIPS

When communication is generally unidirectional or the parties in the relationship have limited influence on one another or on the project, the relationship is of an informational nature. An example of **information relationships** is public participation meetings where the public receives information on a proposed or current project. The public may provide feedback, but they have no legal authority to immediately influence the project.

The contractual relationship is the only one that is legally binding, because the relationship is based on an agreement between the parties.

## Introduction

### 1.2.4 CONCLUSION

The contractual relationship between the Contractor and the Employer could potentially be deemed one of the most important aspects of a construction contract. Because a contract is the primary manner in which construction projects are managed, it is important to understand how a contract works in managing risk to ensure the successful completion of a project.

From international trends and the drive from the South African government to establish uniformity in procurement documents it can be seen that the importance of legal and contract matters is continuously increasing. Research in this field is thus an important part of developing the construction industry.

The GCC has a growing trend of being the preferred procurement document for project, excluding building projects. The JBCC also has an increasing preference, although this is mainly due to the fact that the JBCC is specifically used for building projects.

#### **Problem statement**

***The construction industry is continuously developing in terms of construction methods, use of new technologies and the possibility of constructing increasingly complex structures. The modern construction environment inherently has new risks that have to be dealt with.***

***As contracts are the primary vehicles for managing risks, the continuous development and revision of existing procurement documents should be monitored to ensure that they keep up with the risks that construction projects hold.***

***The use of the SAICE GCC procurement document is shown to be increasing according to the CIDB CII. As such, the development of the GCC should be researched to ensure that risks are dealt with accordingly, without unjustifiably favouring the Contractor or the Employer.***



## Introduction

### 1.3 RESEARCH OBJECTIVES

The objectives of this research are:

- a. To test whether revisions to the GCC from the 2004 edition to the 2010 edition resulted in a change in bias (assuming it exists) and compliance with the requirements of the modern contract;
- b. To determine the extent and effect of alterations to standard clauses of the GCC 2010 on the way in which the contract favours a particular party;
- c. Providing recommendations for future revisions that would potentially improve project success, relationship building and reduce the need for significant alterations to the standard clauses.

### 1.4 RESEARCH DESIGN (METHODOLOGY)

The research design serves as blueprint for the structure for the research project. There are three main designs that can be used, namely, exploratory, descriptive and causal research.

**Exploratory research** is often used when the researcher has limited information on a topic and flexibility to explore the subject is important. The approach to this design is mainly qualitative and the primary research instruments used are expert interviews, discussion groups and the use of secondary data. Secondary data is data that is not directly related to solving the problem stated in the problem definition. This will be discussed in section 1.5.

**Descriptive research** uses observation as the basis on which it is built. It typically allows the researcher to describe findings that are not necessarily technically based, but rather have social origins. A researcher potentially has some knowledge about the subject and follows a structured approach to gathering data.

**Causal research** is based on experimentation and examines the cause and effect results of the experiments. Typically an experiment is repeated numerous times, altering specific variables that may have an influence on the results obtained.

A fourth type of research is suggested called **definitional research**. “This type of research seeks to define the domain of issues and is frequently used in developing ways to measure a given phenomenon.” (Polonsky & Waller, 2005) Definitional research adds a phase before the actual research is done to address the intended objectives. This phase entails creating a definition of the research subject that serves as a measure against which the results can be compared.

## Introduction

### 1.4.1 RESEARCH DESIGN FOLLOWED IN THIS STUDY

The research design for this study was a **combination of exploratory and definitional research**. Comparing the GCC 2004 and the GCC 2010 by means of a content analysis, using a survey to obtain information from a focussed group, as well as applying secondary data to achieve the research objectives of this study, all drew from ***exploratory research design methods***.

By using literature (secondary data) to establish a standard against which the GCC 2010 and the GCC 2004 were measured. This is similar to the methods used in ***definitional research design studies***.

The research instruments used in this study are described in **section 1.5** and the analysis and interpretation of the data gathered is introduced in **section 1.6**.

## 1.5 DATA GATHERING

This section discusses the primary and secondary data sources and briefly explains the research instruments associated with gathering primary data. The methods of data gathering are also highlighted in this section.

### 1.5.1 DATA SOURCES

Once the appropriate research design has been selected, the process of collecting data commences. There are two main sources of data:

1. **Primary Data** – Data specifically aimed at addressing the research problem
2. **Secondary Data** – Data that does not address the research problem directly but is important for background and context

**Primary data** is new data specifically generated for the research study. Data gathering is done with either **quantitative** or **qualitative** research instruments. Both quantitative and qualitative research instruments are discussed in **section 1.5.2**. Both these instruments require a large sample size to ensure that the data is representative of the whole population. Quantitative instruments are aimed at generating information using statistical analysing methods. Qualitative instruments focus on deducing information from individual records. Data from individual records have an intrinsic value, rather than simply being a statistical value. This is especially useful when the sample size is small and would not necessarily represent a population accurately.

## Introduction

**Secondary data** is any data that already exists and serves as the foundation for the research and is especially important in the initial stages when deciding on a research topic. This data can be sourced from published research or from the public domain. Decisions regarding problem definition, objects, research design and research instruments are based on information deduced from secondary data.

### 1.5.2 PRIMARY DATA GATHERING

The use of research instruments depends on the research design and preferred method of data gathering selected. Instruments can be either quantitative or qualitative. It is important to note that a quantitative study may find use for qualitative research instruments and vice versa.

#### 1.5.2.1 QUANTITATIVE RESEARCH INSTRUMENTS

**Quantitative research instruments** are typically used when there is a large number of data elements or the nature of the data is repetitive.

##### **Surveys**

A survey is “a structured questionnaire given to a sample of a population and designed to elicit specific information from respondents.” (Malhorta et al., 2002) Generally a survey is a prescribed form to be filled in with a number of standardised questions that must be answered.

Questions can be closed or open ended, depending on what information is required. Closed questions typically ask the respondent to select one (or more) option from a list or answer by means of a grading system. When additional information is sought, open questions provide respondents with the chance to share personal insights on the subject at hand. Open questions are valuable in that they give the researcher perspectives and insight that would be lost if only closed questions were asked. It is, however, more difficult to process data from open questions to deduce information directly relevant to the study.

There are various methods of completing surveys. Surveys can be done telephonically; by written correspondence; electronically or in person. More recently electronic or online surveys have become increasingly simple to create and distribute. Some tertiary education institutions have their own software for creating online surveys, however freeware such as Google Drive allow researchers to create and distribute surveys easily.

## Introduction

### Observation

Observation allows the researcher to gather data without any bias from potential respondents that may influence results. It is an instrument that records data as neutral objects without consideration for reasons behind the individual data records.

Methods of observation include personal observation, mechanical observation, audit, content analysis and trace analysis.

### Experimentation

One of the most common methods used in scientific research is that of experimentation. Experiments offer researchers the opportunity to test the influence of individual variables on a system by making changes to one variable at a time and repeating the test.

Typically, a standardised control test is done where the results are used as the benchmark against which subsequent tests are measured. The effects of changing variables on the norm can then be seen.

Based on related research described in **section 2.4**, it was decided that the use of **surveys** would complement the research study. Surveys have the advantage of allowing the respondents to remain anonymous, while still providing valuable data. The manner in which surveys were used is explained in **chapter 7**.

#### 1.5.2.2 QUALITATIVE RESEARCH INSTRUMENTS

When individual data elements are unique in nature or the source of the data is potentially subjective, **qualitative research instruments** are typically used.

#### Focus groups

Focus groups provide a platform for open discussion with a moderator guiding the subject throughout the process. Because discussion can take place freely, ideas can develop without limitations.

This form of research is especially useful in the beginning stages of a research study, allowing the researcher to gather new insights into a specific subject. The group situation stimulates creative thinking that may have been hindered if a linear process were followed.

## Introduction

### **In-depth interviews**

Interviews done on a one-to-one basis can provide valuable information that is difficult to gather by means of literature. Interviews with experts who have many years of experience in the proposed field of study are especially useful to the researcher to gain a better understanding of the environment and subject of research.

### **Projective techniques**

This form of research is not particularly suited to technical research studies, as it involves subconsciously guiding respondents to respond on a specific topic. It attempts to discover respondents' subconscious thinking and reasoning.

### **Content analysis**

When objects of similar media type (such as videos, documents, audio or visual media) form part of the study, a content analysis can be used. Each media type has its own distinct characteristics that can be compared.

A **content analysis** was applied in this study by comparing the physical elements of the GCC 2004 with those of the GCC 2010. Secondly, the different interpretations of the content (in this case the meaning of the clauses) were compared, as well as the impact of revisions made to clauses, the omission of clauses and the addition of new clauses in the GCC 2010.

The content analysis is explained in **chapter 6**.

### 1.5.3 SECONDARY DATA GATHERING

As mentioned in **section 1.5.1**, secondary data is gathered from existing data sources. The main source type used to gather secondary data for this study was published articles.

The articles applicable to this study were drawn from various fields of study, including **civil engineering, project management** and **law**.

An introduction to the fundamentals of law relevant to the construction industry is made in **chapter 3** to provide a background to contract law. In **chapter 4**, law of contract is discussed and the relevance to construction contracts explained.

In light of the above, **chapter 5** shows the development of a measure of modern contracting principles against which the GCC 2004 and GCC 2010 were compared. This incorporates the definitional research design as mentioned in **section 1.4**.

## Introduction

## 1.6 DATA ANALYSIS AND INTERPRETATION

The **content analysis** consists of a *comparison of the physical layout* of the GCC 2010 and the GCC 2004, as well as a *clause-by-clause analysis*. The clause-by-clause analysis compares equivalent clauses of the two documents. Clauses that have been revised, removed or new clauses that have been added are discussed in **chapter 6**.

Once the data from the **survey** had been obtained, the data was analysed using spreadsheet calculations and mathematical operators to provide results that could be used to address the research problem. An example of the calculation method is given in **section 7.6**. Results obtained from the analysis are interpreted within the context of the literature review. The survey analysis and interpretation are discussed in **chapter 7**.

## 1.7 PRESENTING RESULTS

**Chapter syntheses** are presented at the end of **chapters 2, 4 and 5** that summarises the information of the chapter and ties it in with the context of the study. **Chapters 6 and 7** that cover the primary data gathered from the content analysis and survey are concluded by presenting the findings in a summarised layout. **Chapter 3** provides an introduction to legal foundations that links with the secondary data in **chapter 4**.

Results of the content analysis and the survey were then crosschecked in relation to one another and a final conclusion, together with recommendations for further study, are made in **chapter 8**.

## 1.8 RESEARCH CHALLENGES

Risk allocation and management is a topic that is core to the construction industry and research in the field has increased greatly over the last twenty years. The main focus, however, has been on managing risks on the construction site and very little has been done in terms of researching the efficiency of contracts with regards to risk allocation.

There was a low response rate from survey respondents, which limited the accuracy of the of participant perception. However, the number of responses were enough to identify tendencies and gain an overall perspective of the issues at hand.

## Introduction

## 1.9 DOCUMENT LAYOUT

### Chapter 1 – Introduction

The first chapter provides an overview on the study and gives background on construction risks and how contracts fit into the context of risk. Secondly, the chapter introduces the problem statement and the research process followed to address the research objectives deduced from the problem statement.

### Chapter 2 – Literature review

Literature directly related to this study is discussed in **chapter 2**. This includes literature regarding the development of the GCC, industry role players such as the CIDB and the perspectives of construction risks from the Employers' and the Contractors' points of view. Research of a similar nature, that contributed to the study is also discussed.

### Chapter 3 – Fundamentals of law

**Chapter 3** introduces the fundamental principles of law that are relevant to contracts. These principles set out the building blocks that are placed into context in the following chapter.

### Chapter 4 – Law of contract

The basic requirements of a contract are set out in **chapter 4** using the principles described in the preceding chapter. These requirements are then explained within the context of the construction industry.

### Chapter 5 – The modern contract

This chapter highlights that apart from legal requirements, a modern contract must follow certain principles to ensure the successful completion of construction projects. These principles provide the framework against which the GCC 2010 and the GCC 2004 are measured.

### Chapter 6 – Content analysis

A comparison between the GCC 2010 and the GCC 2004 is shown in **chapter 6**. A clause-by-clause analysis is performed on both documents that compares the layout, content and bias of the clauses. The results in this chapter are used in conjunction with the results from the survey to address the research objectives.

## Introduction

### **Chapter 7 – Industry survey**

A description of the survey process is made in **chapter 7**. The main areas that the survey investigated were current procurement document use in the construction industry, a comparison of certain aspects between the GCC 2010 and the GCC 2004 and alteration and bias perception of the GCC 2010. The results of the survey form part of the integrated conclusion that is discussed in the subsequent chapter.

### **Chapter 8 – Conclusion and recommendations**

The research objectives stated in the first chapter of this thesis are concluded with the conclusions presented in **chapter 8**. These conclusions were drawn by integrating literature with the findings of the content analysis and the results of the survey. Recommendations for further research stemming from this study are also made in the hope that the contribution of this study will not be limited to a single thesis.



## 2 LITERATURE REVIEW

Firstly, background is provided on the South African Institution of Civil Engineering (SAICE). The development of the SAICE General Conditions of Contract for Construction Works is also discussed.

The role of the CIDB in the construction industry is made clear and the impact that the CIDB has had on standardising procurement processes and the use of standard procurement documents is highlighted.

Typical construction risks that are dealt with in procurement documents are elaborated on in **section 2.3**. Two research studies on procurement documents are shown in **section 2.4** and the relevance of the methods applied in these studies is discussed.

In conclusion a literature review synthesis is made that highlights the most important aspects relevant to the research.

### 2.1 SOUTH AFRICAN INSTITUTION OF CIVIL ENGINEERING

The South African Institution of Civil Engineering (SAICE) was established in 1903 and is a recognised voluntary association with the Engineering Council of South Africa (ECSA). SAICE has one branch in each of the nine provinces in South Africa and at the time of writing this thesis, the SAICE membership was approximately ten thousand.

The mission of SAICE is to advance professional knowledge and to improve the practice of civil engineering. Services provided by SAICE include supporting members in obtaining and maintaining their professional engineer's registration with ECSA, general career guidance, continuous development of the civil engineering industry. Furthermore, SAICE also publishes a journal biannually and a magazine named *Civil Engineering*. In addition to the journal and magazine, SAICE also publishes occasional reports and topical publications, as well as the standard form procurement document known as the General Conditions of Contract for Construction Works.

## Literature review

## 2.1.1 DEVELOPMENT OF THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS

The abbreviation of the procurement document as suggested by SAICE is “GCC” with the latest edition being the **GCC 2010**. The previous edition is abbreviated as the **GCC 2004**. Throughout this thesis the procurement documents shall be referred to as the GCC 2010 and the GCC 2004 respectively.

The foreword of the GCC 2004 states that over several decades, the South African Institution of Civil Engineering (SAICE) has published six editions of General Conditions of Contract for Civil Engineering Works. In 1972 the 4<sup>th</sup> Edition of the GCC was published with the 5<sup>th</sup> edition being published 10 years later in 1982. The 6<sup>th</sup> edition (GCC 1990) was modified by the Committee of Land Transport Officials’ and republished as the COLTO 1998 (SAICE, 2004).

The GCC 2004 was a replacement for both the GCC 1990 and the COLTO 1998 and satisfied the CIDB requirements for standard form contracts. It is also suitable to be used in procurement documents prepared in accordance with the provisions set out in SANS 10403, ***Formatting and Compilation of Construction Procurement Documents*** (SAICE, 2004).

After six years of application in the industry, the GCC 2004 was revised to group clauses together that deal with similar matters, while new matters that have come up as the industry environment has evolved, were also addressed.

A supporting guide to the GCC 2010 was also developed and published alongside the procurement document to assist with the interpretation and implementation of the contract (SAICE, 2010).

Although a detailed origin of the GCC would be valuable from a historic and contextual perspective, it is not of direct interest to attain the objectives of this research and is not discussed.

It is worth noting that the GCC 2010 is again under review and revision, referred to as the “General Conditions of Contract for Construction Works, Second Edition, Revised”. Abbreviated as GCC Revised. (SAICE, 2014)

## 2.2 CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

The Construction Industry Development Board (CIDB) was established in 2000 to ensure the implementation of an integrated strategy for the reconstruction, growth and development of the construction industry (Construction Industry Development Board Act, 2000). After identifying the need for setting certain contractual requirements, the Construction Industry Development Board (CIDB) instituted the ***Standard for uniformity in construction procurement*** in 2004 and since then it has been republished incorporating subsequent amendments (CIDB, 2010).

The CIDB is responsible for setting up regulations and legislation in the construction industry as well as developing standards and best practice guidelines.

The ***Construction Industry Indicators (CII)*** are published annually by the CIDB and are measures of the performance of the industry. With perspectives from clients, consultants as well as contractors, the CII's provide valuable insights to identify potential problem areas within the industry.

## 2.3 CONSTRUCTION RISKS

This section discusses the different construction risk types, as well as the perspectives of risk from both a Contractor's and an Employer's point of view.

### 2.3.1 CONSTRUCTION RISK TYPES

According to Abdou (1996), there are three types of construction risk: **Financial risks**, **schedule risks** and **design risks**.

**Financial risks** contribute to costs exceeding the project budget. Budget overruns are not necessarily the result of poor construction supervision, but are often caused by bad planning, overoptimistic pricing or poor communication and coordination among design professionals and construction trades.

The second type of risk is **schedule risks**. When a project completion date is extended, it inherently has an impact on the cost of the project. If not managed properly, delays can have devastating financial consequences to both the employer and contractor. Financial and schedule risks can also be closely correlated, for example, the cost of a project could increase even before the contract is awarded simply due to inflation.

## Literature review

Thirdly there are **design risks** that are present in any construction project. The final product must meet the requirements of the intended use, otherwise the project is a failure. Errors and omissions in designs could result in rework, that may further affect the schedule and have cost implications.

A fourth risk type that is not as obvious is **contractual risk**. Contractual risks bind both the Contractor and Employer to a specified performance. When circumstances change, situations may arise where the contract may potentially become a hindrance to finding suitable resolutions due to strict contractual restrictions.

### 2.3.2 PERSPECTIVES OF RISK

Construction contracts are between two parties namely, the Employer and the Contractor. This means that there are two different perspectives on risk and how it should be dealt with. Furthermore, each party brings his own risks to the table, which may impact the other role players, which they again need to consider.

#### **Contractors' perspective of risk**

Jerling (2009) states that contractual risks contained in contract documents were found to be the second most important risk group generated by the Employer. Furthermore, the top five risk items relating to Employer generated risk were:

1. Design/construction details supplied late;
2. Project size and scheduling presenting extraordinary risk to the contractor who would have difficulty delivering the project on schedule;
3. Construction contract significantly favouring the employer's interests;
4. Too many variations are made to standard conditions. The Employer not able to manage change and make timely decisions.

## Literature review

**Employers' perspective on risk**

Research focussed explicitly on Employers' perspective on risk is limited and risk items had to be drawn indirectly from several sources. The first source is the ***Rethinking Construction: The report of the construction task force*** (Egan, 1998). Better known as *Egan Report* from the United Kingdom, the task force comprised of ten members, primarily Employers from the building fraternity.

The Egan Report refers to a survey by the **British Property Federations** where major UK Employers were dissatisfied with the following aspects:

- Contractors
  - Not keeping to quoted price and time schedules
  - Defects in final product
  - Delivering final product of the below specified quality
- Consultants
  - Poor team coordination
  - Poor design and innovation
  - Slow and unreliable service
  - Poor value for money

A different survey by the **Design Build Foundation** also referred to in the Egan Report showed that Employers wanted:

- Greater value from their products in terms of meeting functional business needs
- Reduction in capital costs and improved quality of new structures
- Reduction in long term running costs and improving existing structure quality
- Integration of design and construction to improve value and reduce cost

## Literature review

The items that the task force involved with the **Egan report** found most critically needed to sustain improvements are:

- Capital cost
- Construction time
- Predictability
- Defects
- Accidents
- Productivity
- Turnover and profits

From the three abovementioned sources (British Property Federations, Design Build Foundation and the Egan Report) the issues can be grouped under the following risks:

1. **Project cost and schedule overruns** due to Contractor waste in terms of rework, poor labour productivity and ineffective communication with Consultants.
2. **Inadequate quality** of the finished product with **potential defects** that need to be mended.
3. The **immediate and long term value** of the delivered product value **does not equal product cost**.

Research in the South African context by Visser and Joubert (2008) presented the top ten construction risk exposures.

1. Shortage of key skills (human capital)
2. Shortage of critical raw materials
3. Availability & access to key plant
4. Tendering & contract exposures
5. Identification, reporting & action of project non-conformances
6. Poor business risk management
7. Project management issues
8. Poor data management
9. Financial fluctuations & cost overruns on long term projects
10. Government & legislation issues

## 2.4 RESEARCH DONE ON PROCUREMENT DOCUMENTS

### 2.4.1 CONTRACT COMPARISON

The New Engineering Contract (NEC) is a procurement document developed in the United Kingdom by a division of Thomas Telford Ltd.

Heaphy (2013) makes a high level comparison between the NEC 3<sup>rd</sup> edition and the FIDIC 1999 suite of contracts. The comparison is done according to eight categories:

1. Structure and format: language
2. Structure and format: flexibility
3. Structure and format: effective management
4. Structure and format: partnering
5. Contents of a contract document
6. Roles and responsibilities
7. Variations/extension of time/claims
8. Dispute resolution

Furthermore a summary of the advantages and disadvantages of the two contract suites was provided by Heaphy, highlighting various aspects making them unique.

### 2.4.2 USE OF *PRO FORMA* CONTRACTS IN THE MINING INDUSTRY

A study done by Smith and Bekker (2008) compared the use of three *pro forma* (standard form) procurement documents in the mining industry. The three documents that were compared are the **NEC 3**, **FIDIC 1999** and **GCC 2004**.

The method followed was to apply contractual provisions of each document to different problem types of a contractual nature. This was used to evaluate the adequacy of the documents with regards to these situations. In total, five problems were identified and the relevant clauses of each document were identified and comments made.

A second analysis of the legal remedies was also made with regards to specific performance, damages, *lex commissoria* (right to cancel), penalties and dispute resolution procedures.

## Literature review

Although the study was done with a specific focus on contract suitability in the mining industry, the principles and research methods followed is similar in nature to that of this study. One of the findings of the study was that none of the mines used the GCC 2004 documents.

## 2.5 SYNTHESIS OF LITERATURE REVIEW

Both SAICE and the CIDB have prominent roles in the construction industry. SAICE is an independent institution that continuously researches and develops various sectors of the industry. Furthermore, SAICE has published its own procurement document that has been developed and refined in South Africa for use in the local industry. This document is the most preferred procurement document currently used in the South African construction environment.

The CIDB is a government institution that was established to promote development within the construction industry on various levels. One of the most prominent developments is the drive to standardise procurement methods by means of the ***Standard for uniformity in Construction Procurement***.

Because of the continuous development of technology, construction methods also develop and construction designs become more complex. The increased complexity brings with it an increase in risk that must be dealt with. As contracts are the primary tools to allocate risk, it is important that they also develop in line with the advancements in construction methods and technology.

Over time legislation and regulations change and this means that the responsibilities of parties intending to undertake construction projects also change. Conditions of contract that were applicable twenty years ago, for example, may not be in line with legal requirements today. The ***Occupational Health and Safety Act*** and the ***Construction Regulations*** are prime examples of new legislation that has directly influenced parties' responsibilities and methods of construction.

The perspectives of construction risks vary slightly between Contractors and Employers. Contractors' highest concern are for risks related to schedule and scope, while Employers are more concerned with risks of a quality, cost and schedule nature.



## Literature review

Independent research done on comparing procurement documents is very limited as institutions who develop procurement documents tend to focus on their document only and how it can be developed to improve on shortcomings found in practice. A study done comparing the NEC 3 with the FIDIC procurement documents was done according to a predetermined list (Heaphy, 2013). This study did not focus on the developments of the individual documents from one edition to the next. As the study was on two international procurement documents that, according to CIDB's CII are not used often in South Africa, the comparison itself held limited significance, however the principles according to which the comparison was done was of high value.

The study by Smith and Bekker (2008) within the South African mining environment researching the use of procurement documents showed that the GCC was never used in mining projects. The methods used in the mining study to compare the various procurement documents were found to be of a suitable nature for use in the study by the author.

### 3 FUNDAMENTALS OF LAW

This chapter provides a basic understanding of the fundamentals of law. The law will not be discussed in depth, as the aim is to only explain the context in which construction contracts are used. Most of this chapter is based on lectures and notes taken from Prof Charl Hugo when he presented lectures on Construction Contract Law at Stellenbosch University in 2012 (Hugo, 2012).

The topics that are covered are:

- What is law?
- Sources of law
- Main branches of law
- Legal capacity
- Types of rights
- Origins of rights and obligations

The information presented in this chapter is linked to **chapter 4** that discusses the law of contract.

#### 3.1 WHAT IS LAW?

The definition of law is a “body of rules aimed at regulation human conduct that are capable of being enforced in law courts.”

#### 3.2 PRIMARY SOURCES OF LAW

There are different sources of law, each of which has a specific authority. In South Africa, all law is subject to the Bill of Rights as set out in Section 8 and 39(2) of the Constitution.

## Fundamentals of law

In order of descending authority, the sources of law will now be briefly discussed.

1. Legislation
  - 1.1. Original
  - 1.2. Subordinate
2. Common law
3. Judgements or precedents

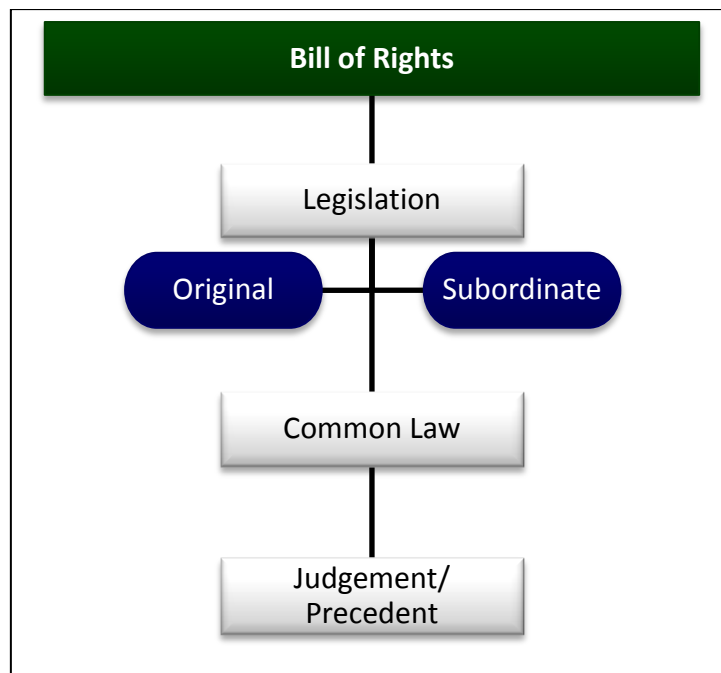


FIGURE 3.1 ORDER OF AUTHORITY

### 3.2.1 LEGISLATION

The first and most authoritative source of law is Original legislation. National Acts of Parliament, Provincial Acts and Municipal By-laws fall into this category.

Secondly there are regulations that are made in terms of Original legislation. These form Subordinate legislation.

Examples of legislation that are applicable to the construction industry include the occupational health and safety act, companies act and labour laws such as the basic condition of employment act.

### 3.2.2 COMMON LAW

In South Africa, there are two strands that form the basis of common law. These are Roman-Dutch law and English common law.

## Fundamentals of law

### 3.2.3 JUDGEMENTS OR PRECEDENTS

Judgements are rulings made in court cases by a judge. Occasionally judgements from previous cases are referred to in judgements on other court cases. Precedents are derived from judgements made in court cases that set a standard for specific circumstances.

## 3.3 MAIN BRANCHES OF LAW

The main branches of law have been simplified to indicate the areas that are relevant to the construction industry. **Figure 3.2** shows the different branches of law applicable in construction projects.

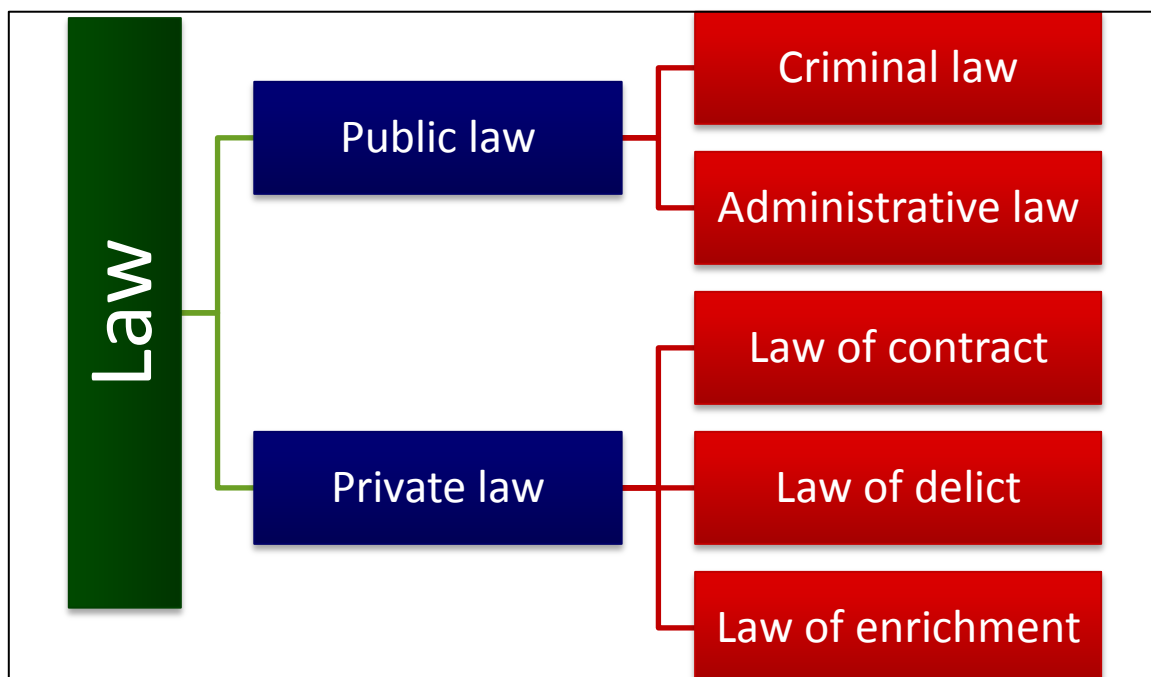


FIGURE 3.2 BRANCHES OF LAW

### 3.3.1 PUBLIC LAW

Public law deals with the regulating the relationship between the state and subjects of the state. Aspects of public law that are of particular importance in the construction industry are **criminal law** and **administrative law**.

### 3.3.2 PRIVATE LAW

The private law branch regulates the relationship between persons and the main aspects that relate to the construction industry are **law of contract**, **law of delict** and **law of enrichment**.

### 3.4 LEGAL CAPACITY

Legal capacity is the capacity of a person to have rights and to have obligations. In legal terms a person can mean a natural person or a juristic person. A person is seen as a legal subject.

#### **Natural person**

A natural person is a real human being.

#### **Juristic person**

According to Du Bois et al. (2007) a juristic person is “an entity, with a name of its own, but having no physical existence, and existing only in the contemplation of law, on which the law confers personality, which is the capacity to acquire rights and incur obligations.”

Different examples of juristic persons are companies, closed corporations, the state and clubs or similar institutions. A very important aspect to consider is the authority of natural persons to act on behalf of juristic persons.

#### **Trusts and partnerships**

Trusts and partnerships are not juristic persons, but the rights and obligations fall on the trustees or partners in their own capacity. In the case of partnerships (also joint ventures), the rights and obligations are those of the partners individually and jointly.

Although a trust or partnership is not a juristic person, a trustee or partner can be a juristic person. An example would be two companies entering into a joint venture partnership for a construction contract.

## Fundamentals of law

### 3.5 TYPES OF RIGHTS

A right is classified as a legal object. There are **four types of rights** that a person (natural and juristic) can have.

#### **Real right**

A real right is a right to a thing.

#### **Personal right**

All persons have the right to performance. This means the right to do something and also the right to refrain from doing something.

#### **Immaterial property right**

This is the right to immaterial or intellectual property such as copyright, trademarks and patents.

#### **Personality rights**

Personality right has three aspects. Bodily integrity, dignity and reputation.

### 3.6 ORIGINS OF RIGHTS AND OBLIGATIONS

Within the context of this research, **rights and obligations come into being through contracts, delict or undue enrichment**. There are other origins of rights and obligations, but these are not directly relevant to this study.

### 3.7 RELEVANCE OF FUNDAMENTALS OF LAW TO THE STUDY

This chapter provides a basic explanation of the concepts that is relevant in contracting, more specifically, construction contracting. **Chapter 4** builds on this chapter by placing the abovementioned concepts in the context of the law of contract.

## 4 LAW OF CONTRACT

In **Chapter 3** the basic principles of law were introduced and are now placed into context within the law of contract. This chapter elaborates on the law of contract and covers different aspects from the requirements of a legal contract to the termination of a contract. It must be noted that this is from a strictly legal perspective and limited engineering input is found in this chapter, however the principles that govern construction contracts stem out of the legal branch of law of contract.

### 4.1 WHAT IS A CONTRACT?

Loots (1995) defines a contract as **“an agreement that is intended to be enforceable by law.”** The intention to contract (*animus contrahendi*) is what determines whether an agreement is indeed a contract or merely an informal arrangement.

A similar definition provided by Williston and Lord (1990) who state that traditionally a **contract can be defined as “a promise or set of promises, for breach of which the law gives a remedy, or the performance of which the law in some way recognises as a duty.”**

It is clear that a contract is thus an agreement between two or more parties in which an action or promise of action of one party requires another party to act upon. This is done with the understanding that the actions of all parties may be enforced by law if one should fail to act.

The most notable differences between construction contracts and other contracts are discussed in **section 5.2**.

## Law of contract

### 4.1.1 UNILATERAL AND BILATERAL CONTRACTS

As mentioned in **section 3.6**, a contract gives rise to rights and obligations. If a contract only creates an obligation for one party it is known as a unilateral contract. An example of this is making a donation or a pledge. In contrast a bilateral contract gives rise to obligations to all parties involved. A typical example is a building contract – the contractor is obliged to construct a building and the employer is obliged to pay for it. **Figure 4.1** illustrates the abovementioned contract.

In the event that one obligation is dependent on the other, as in the case of the building contract, the contract is reciprocal. A non-reciprocal contract is when the obligations are not dependent on one another, for example a sale on credit.

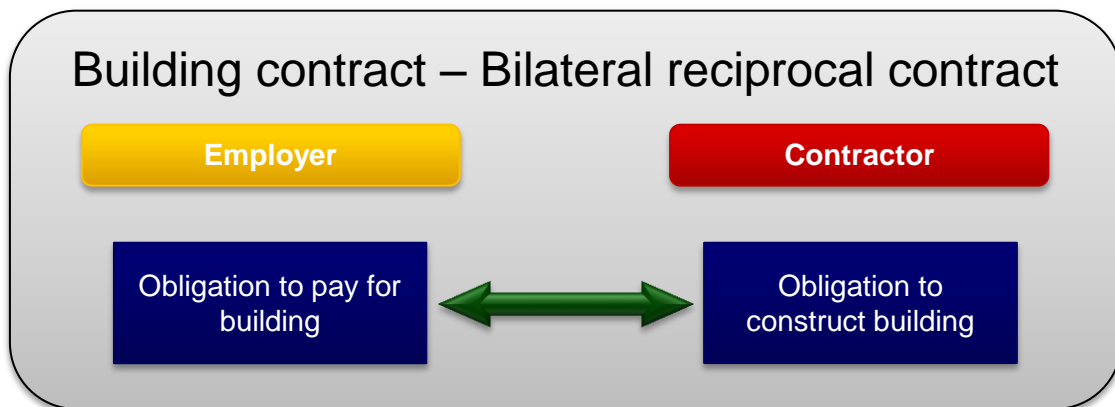


FIGURE 4.1 BILATERAL RECIPROCAL CONTRACT

## 4.2 LEGAL REQUIREMENTS

A contract must meet certain requirements for it to be legally recognised in a court of law and legally binding. These requirements are provided under the following headings:

### 4.2.1 CONSENSUS

There must be a **true agreement between the parties** as to what the contract is for. Consensus must not be improperly obtained by pre-contractual misrepresentation, induced by force or fear and no bribery or undue influence is allowed.



## Law of contract

Misrepresentation can be done intentionally, negligently or innocently. In construction contracts this requirement is difficult to comply with completely as there are many unknowns before construction commences. One example of such an unknown is subsoil conditions which can result in innocent misrepresentation if not provided for as a remeasurable item. For this reason the contract contains clauses to address issues of unknown conditions and the consequences thereof.

If it can be proven that there was no true consensus at the time the contract was concluded, the contract can be rescinded. Further reasons for possibly voiding a contract is error in *negatio* (the nature of the agreement) and error in *persona* (identity of the party). These cases are known as mistake in legal terms.

### 4.2.2 CONTRACTUAL CAPACITY

As discussed in **chapter 3** there are different types of persons from a legal perspective. Parties entering into a contract can be a **natural person, juristic person, trust or partnership**.

Natural persons must have legal capacity to enter into a contract. In South Africa the legal age to enter into a contract is 18 years. Minors under the age of 18 may enter into a contract with the consent of their parent or guardian.

Juristic persons may be bound to a contract by a natural person who is authorised to conclude contracts on behalf of the juristic person. Trusts generally require all trustees to sign a contract before the trust is bound. In a partnership, one partner can bind the partnership (and so doing the other partner or partners) to a contract without the consent of all the partners.

Restrictions are made on the contractual capacity of natural persons when they are declared mentally unfit, intoxicated or bankrupt. Insolvent juristic persons also do not have contractual capacity.

## Law of contract

### 4.2.3 FORMALITIES

Where statutes dictate, **contracts need to comply to certain formalities**. One example is that the contract must be in writing and signed by all of the parties involved.

There are no requirements with regards to formalities in South Africa in general, with a couple of exceptions. Contracts can therefore be concluded orally, tacitly or by conduct. Although contracts can be concluded in this manner, it is uncommon that this is the case in the construction industry.

The technical nature of construction, building and engineering projects consequently encourages the use of written contracts to clearly define expectations and responsibilities. From a practical point of view an oral contract is not feasible. Furthermore, written contracts may insist on specific formalities that need to be complied with.

### 4.2.4 CERTAINTY

**The terms and conditions stipulated in a contract must be clear and unambiguous** to ensure that all parties have certainty about the expectations, responsibilities and risks. If a contract is considered to be too vague, it will be declared invalid.

### 4.2.5 POSSIBILITY OF PERFORMANCE

**If at the time of conclusion of the contract it is not possible for either party to perform the obligations stated in the contract, no contract comes into existence.**

The reason for performance being impossible must be objective in the sense that it is outside the reasonable control of the party. An objective reason is that a building cannot be built because of inadequate subsoil conditions. Subjective impossibility is for example a change in the employer's financial situation and is therefore unable to pay for the building. The party not at fault would then be able to claim compensation for any damages or costs incurred.

It is important to note that absolute impossibility is not required for a contract to be void. If the situation is of such a nature that continuing would be totally impractical, it would be sufficient to void the contract. Total impracticality would be when there are severe difficulties and risks involved in continuing and the cost would be disproportionate to the benefit. The example of the inadequate subsoil conditions would thus be subject to the aforementioned conditions.

## Law of contract

Conditions of contract are used to minimise exposure to subjective impossibilities. Guarantees, insurances and the acquiring of bonds are examples of such conditions.

### 4.2.6 LEGALITY

**Any contract that is unlawful is void as a rule.** A contract is unlawful if one or more of the following aspects are prohibited by statute or common law:

- Conclusion of the contract (Example: Sale of alcohol on a Sunday)
- Performance of the contract (Example: Agreement to commit a crime)
- Purpose of the contract (Example: Agreement to insure stolen goods)

In some cases a contract may contravene a statute, but may not necessarily mean that it is unlawful as described in the abovementioned paragraph. The legislation may be intended to impose a penalty without rendering the contract void.

To determine whether a contract is in contradiction to common law, public policy and principles of *boni mores* (good morality) are used as reference. Public policy and principles of *boni mores* are different from statutes in that they are not fixed, but continuously developing concepts.

There are three main classes of agreements that may contradict common law. These are listed below.

- Agreements that may injure the state or public service
- Agreements that may obstruct or defeat the administration of justice
- Agreements that interfere a person freely exercising his or her rights

When only a portion of contract is illegal, that portion can be separated from the contract as whole. The part of the contract that is legal remains binding.

## 4.3 CONSEQUENCES OF INVALID CONTRACTS

A contract can be declared invalid in one of two ways. The first is that the contract is void from the moment of its supposed conclusion as shown in **Figure 4.2**, this is known as a **void contract**. The second way in which a contract may be declared invalid is that it is rendered void retrospectively by a court, as shown in **Figure 4.3**. This is called a **voidable contract**.

A **void contract** never existed from a legal perspective. Typically this may happen if the legal requirements for a contract were not met or the contract was concluded erroneously.

If a contract was concluded correctly and met all the requirements to be a legally binding contract, but a court declared it void afterwards, the contract is deemed a **voidable contract**.

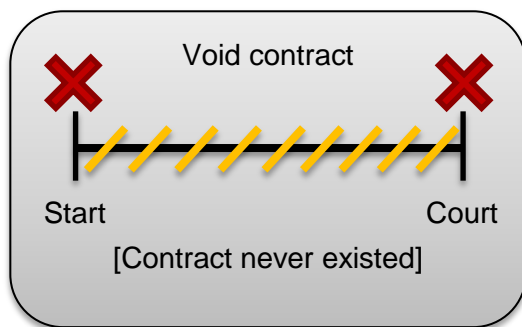


FIGURE 4.2 VOID CONTRACT

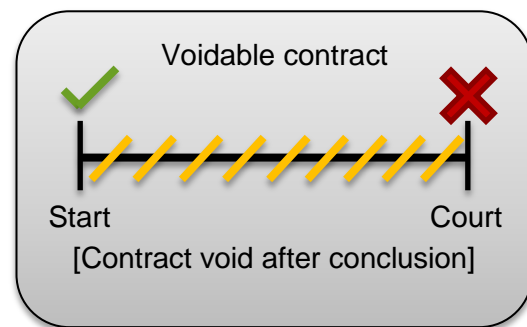


FIGURE 4.3 VOIDABLE CONTRACT

**Once a contract is declared invalid (be it a void or voidable contract) the consequence is that neither party can enforce performance thereof by the other.** If a party had already performed according to the invalid contract, a claim may be made for compensation. In the context of a construction project, it is unlikely that a Contractor would be able to claim the contract price as set out in the contract, but a claim could be made on the basis of enrichment that the Employer had gained.

**Undue enrichment** is when one party is unjustifiably enriched due to the performance of the other, who is impoverished. The extent of both enrichment and impoverishment is determined and the party who is claiming is entitled to the lesser of these two.

## Law of contract

In the event that a contract between the Contractor and the Employer was declared invalid, it would not necessarily mean that a contract between the Contractor and a sub-contractor would also be invalid. Any claim that the sub-contractor made would thus be a contractual claim, as the contract may still have been valid. The independence of the contract is shown in **Figure 4.4**. It is important to note that the sub-contractor does not have a contract with the Employer and thus could not claim from the Employer.

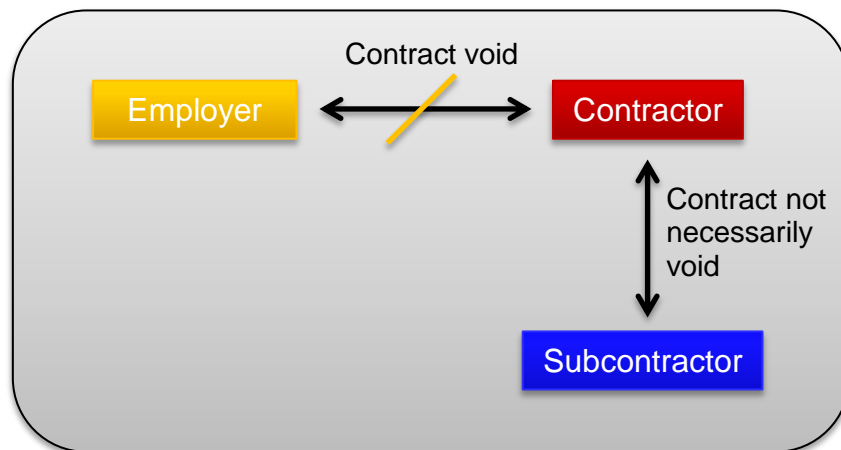


FIGURE 4.4 CONTRACT WITH SUB-CONTRACTOR NOT NECESSARILY VOID

## 4.4 BREACH OF CONTRACT

There are four forms of breach relevant to the construction industry.

- ***Mora debitoris***
- ***Mora creditoris***
- **Positive malperformance**
- **Repudiation**

***Mora debitoris*** is the failure to timeously perform as per the contract. An example is when the Contractor does not begin execution of the Works on the prescribed date.

When a party fails to receive or accept the performance rendered by the other party, the aforementioned party is said to be in ***mora creditoris***. In the construction industry this could be the Employer not accepting the completed Works that the Contractor has completed to specification.

## Law of contract

Both the *mora debitoris* and *mora creditoris* forms of breach are related to time. **Positive malperformance** relates to the manner in which performance is rendered. If the performance (or delivered product) is not of suitable quality, the party responsible for performance is in breach. This form of breach is particularly important in building contracts where the completed Works must be suitable for occupation, as defined in the contract. Positive malperformance allows the Employer to withhold payment until performance is properly met.

**Repudiation** is the refusal to perform as per the contract. The refusal must be direct and unambiguous – for example, a Contractor must clearly state that he is not going to execute the Works to complete a building.

### Consequences of breach

The remedies for breach are **specific performance**, where performance is enforced by a court of law, or **cancellation** of the contract. Cancellation is an extraordinary remedy and is only referred to in serious breach situation as a last resort.

Whether the remedy is specific performance or cancellation, the aggrieved party may be entitled to **damages**.

## 4.5 TERMINATION OF CONTRACTS

The termination of a contract happens in one of seven ways.

### Fulfilment of performance

Fulfilment of performance is the most common and preferred manner of termination. This is when both parties fulfil their performance as required by the contract and the contract is concluded.

### Merger

When the creditor and debtor of the contract becomes the same person, the contract is terminated by means of merger. In a construction context, this would typically happen when a Contractor buys the property on which he is busy constructing.

## Law of contract

### **Set-off**

If, for example, the Contractor is owed money by the Employer for performance rendered in terms of a construction contract, but the Contractor owes money to the Employer as the consequence of a separate loan agreement, the contract may be terminated by setting off the amount owed in terms of the construction contract to the amount that is owed to the Employer in terms of the loan agreement. This is known as terminating the contract by means of set-off.

### **Release and waiver**

Termination may occur if both parties agree to release and waiver all rights and obligations as stipulated in the contract.

### **Novation**

There may be a situation where a new contract is entered into that extinguishes the earlier contract. This is known as novation. If the new contract is concluded by the same Contractor and Employer, it is called *novation proper*. A *compromise* may be reached in which the earlier contract is settled to the current extent of performances. If a debtor (Contractor) fails to perform, he may be substituted by a new Contractor – this is known as *delegation*. *Assignment* is when either the creditor or the debtor are substituted.

### **Supervening impossibility of performance**

Circumstances may arise that makes performance delivery impossible (or impractical). The contract may then be terminated by supervening impossibility of performance.

### **Extinctive prescription**

Extinctive prescription is the extinction of a right or claim due to a time lapse and is governed by the prescription act in South Africa. The construction industry presents a legal minefield with regards to extinctive prescription as claims and rights do not necessarily have concrete dates set from which the duration of time can be measured.

## 4.6 CHAPTER SYNTHESIS

**A contract is fundamentally a description of a transaction between two (or more) parties that agree to be legally bound to the complete transaction.** In the construction context it is the promise of an Employer to pay a Contractor for a specific performance that the Contractor must perform.

In order for the contract to be legally binding **it must comply with the requirements set by the jurisdiction** applicable to the endeavour. If a contract does not comply with the requirements or a court declares the contract void in spite of complying with the legal requirements, consequences may include compensation for undue enrichment. This is applicable to construction contracts in the sense that a Contractor who has incurred costs in performing part of the contract is entitled to be compensated for the performance. The Employer is likely to be enriched by the product (complete or incomplete) delivered by the Contractor.

**Termination of the contract can happen in one of seven ways**, the most desirable being the successful completion of the project and thus the fulfilment of performance by both parties.

**There are four forms of contract breach** that may result in the cancellation of the contract or a court of law may enforce the performance by the breaching party.

This chapter summarises the legal requirements relevant to creating a legally enforceable contract. **Chapter 5** applies these requirements in describing the modern contract in the current construction industry context. These requirements are then investigated in subsequent chapters.



## 5 THE MODERN CONSTRUCTION CONTRACT

With technology developing at a rapid pace and construction methods changing to incorporate this, technology, many construction projects are becoming more complex. The more complex a project is, the more risk is involved in the project.

In light of these developments, modern contracting principles must also remain up to date to effectively manage risks generated by the changing construction technologies and methods.

This chapter discusses different approaches to contracting and what the approach should be in modern contracting, to ensure successful projects.

The first section discusses the differences between a **transactional approach** and a **relational approach** to contracting.

The essential characteristics of a modern contract were identified to serve as a measure against which the GCC 2010 and GCC 2004 were measured.

### 5.1 APPROACHES TO CONTRACTING

This section compares having a **transactional approach** to a **relational approach** in contracting. Both approaches can be applied to any contracting method as discussed later in this chapter, however certain methods are better suited to the different approaches.

Rahman and Kumaraswamy (2002) stated that cooperative attitudes of project participants are important for successful project delivery. Relational contracting is an effective way of creating a positive environment to encourage teamwork and trust, but must be integrated with efficient transactional principles. A model was also conceptualised to improve project delivery by using joint risk management.

#### 5.1.1 TRANSACTIONAL APPROACH

Traditional contracts tend to have a transactional approach where operations are very distinct and formal in nature. Any relational aspect is kept to a minimum (Macneil, 1974). Roles, responsibilities and the allocation of risks are clearly defined, leaving little room for negotiation. Having a **transactional approach** to contracts may lead to conflict between parties resulting from adversarial attitudes, as stated by Walker and Davis (1999). Furthermore, it may develop a culture of self-centredness, irrespective of the impact it may have on other parties.

## The modern contract

It is not to say that traditional contracts with a **transactional approach** are bad, but rather that they do not necessarily encourage continuous cooperation between parties. In an environment where the duration of the obligation is short, there is no need for extensive collaboration. An example of a contract of short duration is the installation of equipment or the purchase of material. In the construction industry, however, projects are inclined to be longer and more complex. The obligations in terms of warranties and latent defects also extend the relationship between the Contractor and the Employer, requiring parties to communicate regularly and work together to achieve goals successfully.

### 5.1.2 RELATIONAL APPROACH

On the other side of the spectrum, a **relational approach** to contracting exists. This approach is characterised by mutual trust, building a long term partnership and solving problems through cooperation (Duberley, 1997). In layman's terms it can be described as a "*Gentleman's agreement*" in written form.

Relational contracts are potentially dangerous in the sense that dishonesty and self-interest may cause serious damages to the other party. When the focus shifts from project success to exclusively personal success, the risk of project failure drastically increases. As soon as the project is at risk, both parties are exposed to risks that were not anticipated when the contract was concluded. As Egan (1998) discusses, there must be an understanding of mutual interdependency on both sides.

In the construction industry, informal relational contracting arrangements are used on a regular basis possibly without being realised. Examples of these transactions include claims and variation orders that are recurrent on projects (Rahman & Kumaraswamy, 2002).

## 5.2 HOW CONSTRUCTION CONTRACTS DIFFERS FROM OTHER CONTRACTS

Seeing that the law in which the construction industry operates differs from normal situations, the construction contract is also different. The most notable differences are mentioned in this chapter.

### 5.2.1 PROVISION FOR CHANGES IN CONSTRUCTION CONTRACTS

Due to construction inherently having a number of unknowns, for instance sub-soil conditions, the contract must allow for changes. This is done primarily through variation orders.

## The modern contract

### 5.2.2 OWNERSHIP IN CONSTRUCTION CONTRACTS

As construction entails the delivery of a product on a specific site, the property on which construction activities are performed belongs to, or at least is under the control of, the Employer. The Works that are executed by the Contractor belongs to the Contractor until a certificate of completion is provided by the Employer or by the Consultant on the Employer's behalf. Ownership of the Works is then transferred to the Employer.

Ownership of the site remains with the Employer, however, the Contractor is given possession of the site. The Contractor initially owns the materials and when the materials are built into the works, ownership passes to the Employer. This is known as *accession*.

### 5.2.3 SIZE AND DURATION OF CONSTRUCTION CONTRACTS

Construction projects can potentially be very large projects, both in size and monetary value. Project costs can be billions of rands and although there are other industries, such as military contracts, that may also be of the same calibre, construction projects are the most common. Depending on the product that is to be delivered, project duration can range from a couple of days or weeks to a number of years.

The greater the size and duration of a project, the more intricate the relationship between the Contractor and Employer becomes. Larger projects also have a tendency to encompass a larger group of participants who are involved in the project. Examples of involved parties are sub-contractors, specialist consultants and different suppliers. In some instances the Employer may also change over time – a typical scenario is when a project is done for a government body and after an election a different person or political party is in office. The Employer is still the government body, but the government body itself has changed.

One of the most notable examples of how changes, ownership, size and duration matters influenced a construction project is the construction of the Sydney Opera House in Australia. The initial budget was AUS \$7 million and scheduled to be completed in four years. The project took fourteen years to complete and cost AUS \$102 million (Anter et al., 2009).

## The modern contract

### 5.3 CONTRACTING AND PRICING STRATEGIES

The CIDB identifies five contracting strategies that can be applied to a construction project. Each strategy allocates risk and responsibility differently. As the Employer is usually the party responsible for setting up the contract, it is up to the Employer to select the amount of risk that he is willing to take and how much risk would be allocated to the Contractor.

The level of risk that the Employer allocates to the Contractor directly influences the price that the Contractor will charge for the project. The higher the risk, the higher the price. A subsequent effect of allocating more risk (and in so doing more responsibility) to the Contractor, is that the Employer will have less flexibility and less influence on the outcome of the project.

**Figure 5.1** is taken from the CIDB *Best Practice Guideline #C2* and shows the relationship between risk and flexibility when selecting different contracting and pricing strategies.

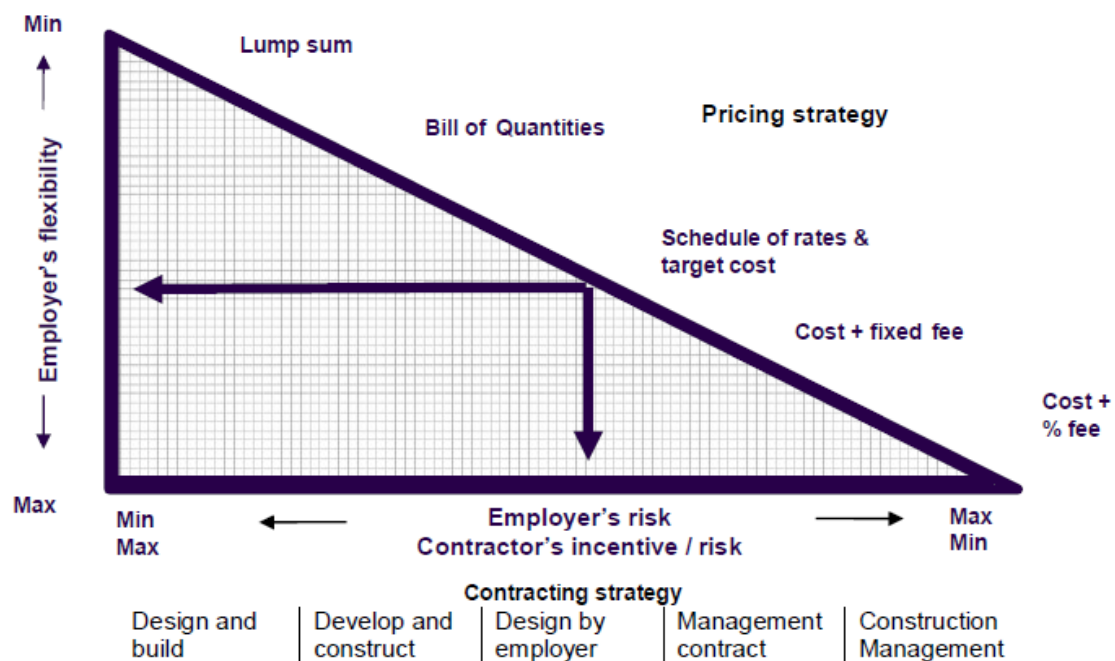


FIGURE 5.1 CONTRACTING AND PRICING STRATEGIES (CIDB, 2010)

The contracting strategy is the starting point for defining clear roles and responsibilities for the Contractor and the Employer.

## The modern contract

The individual contracting strategies together with the related pricing strategies are discussed in the following sections:

### 5.3.1 DESIGN AND BUILD

Most of the design work is done by the Contractor according to the Employer's description of what is required. Typically a **design and build** contracting strategy adopts a *lump sum* pricing strategy.

The Employer has limited involvement during any stage of the project, but also has a reduced risk profile. Contractors' have an increased risk profile, but incentive to perform efficiently is higher.

### 5.3.2 DEVELOP AND CONSTRUCT

A concept design is supplied by the Employer from which the Contractor develops the necessary detail designs and then completes the Works according to the designs. Apart from during the initial design stages the Employer has restricted flexibility.

Similar to the design and build strategy, the **develop and construct** contracting strategy allocates more risk to the Contractor, but reduces the flexibility afforded to the Employer.

### 5.3.3 DESIGN BY EMPLOYER

**Design by Employer** is the more traditional form of contracting strategy and is often found in the construction industry. This strategy places the design responsibility completely on the Employer and the Contractor is only responsible for constructing the Works according to the supplied designs.

Typically, either a *bill of quantities* or a *schedule of rates* pricing strategy is adopted for the design by Employer contracting strategy.

### 5.3.4 MANAGEMENT CONTRACT

The **management contract** contracting strategy places the responsibility of design on the Employer. The Contractor does not execute the Works per se, but is responsible for the execution of the Works by sub-contractors. The Contractor may have multiple contracts with various sub-contractors, but the Employer only has a single contract with the Contractor.

*Target cost* or *cost plus fixed fee* pricing strategies are common with management contracts.

## The modern contract

### 5.3.5 CONSTRUCTION MANAGEMENT

If the Contractor is required to only manage the construction of the Works as with the management contract, but all of the sub-contractors are directly contracted by the Employer, the contracting strategy followed is **construction management**.

The Contractor has a low risk, because of the limited supervisory role that the Contractor is given. The Employer takes responsibility for design and contacting and is thus exposed to a higher degree of risk, but also has a high level of flexibility.

The pricing strategy typically adopted for a construction management contract is *cost plus fixed fee* or *cost plus percentage fee*.

## 5.4 MODERN CONTRACT REQUIREMENTS

A study by Howell (1991) about aspects of general conditions in contracts which give rise to dispute found that procurement documents need to conform to the following requirements to reduce risks inherent to construction projects:

- i. Clear and unambiguous explanation of the Employer's intent.
- ii. The intent of the contract must be to maintain an equitable balance between the Employer's and Contractor's interests.
- iii. Clear and complete information about
  - a. Scope and quality of the works
  - b. Information on cost-affecting factors such as subsoil conditions
  - c. Risk allocation
  - d. Programme requirements with cost implications
  - e. Restrictions on normal construction procedures
  - f. Basis for interim payments

What can be drawn from the abovementioned results is that procurement documents must provide clear conditions explaining requirements, roles and responsibilities and payment conditions are important to keep risks to a minimum. In addition to providing clarity, the contract must be intended to divide the risks equitably between the Contractor and the Employer. The risk allocation must be balanced with the aim of keeping the contract fair. A fair contract promotes a successful project.

Ideally, a fair contract would allocate risks to the party who is best suited to manage the risks.

## 5.5 THREE PILLARS OF THE MODERN CONTRACT

Lord et al. (2010) proposes that the foundation of modern contracts rest on the following three pillars **Fairness, roles and functions of project participants** and **payment operating mechanisms**. These pillars, as shown in **Figure 5.2** are key to ensure a firm basis of a modern contract:

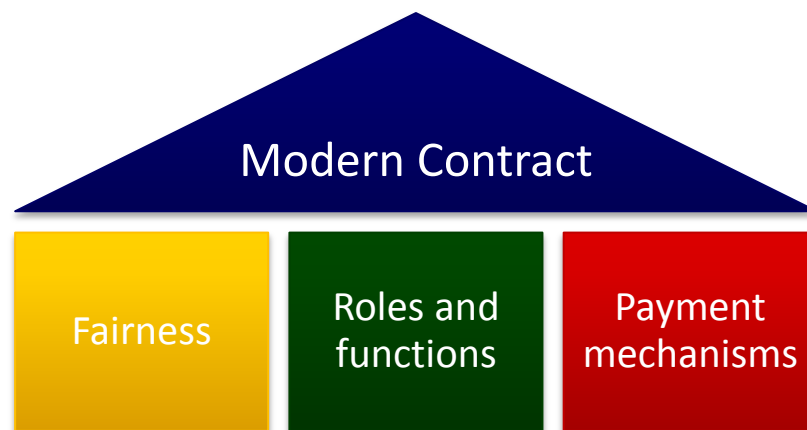


FIGURE 5.2 THREE PILLARS OF THE MODERN CONTRACT

### Fairness

The contract must be fair in its entirety, as well as the individual conditions must be equitable and not unbalanced in favour of a specific party. If the contract is set up to be objectively fair, the relationship between the Employer and the Contractor will be based on trust. This links with the relational approach in contracting and supports the concept of cooperative problem solving.

### Clarity of roles

Parties involved in a contract must know exactly what is expected of them and what responsibilities are placed on them. When the Employer and the Contractor understand their own roles, as well as the other's, the potential for conflict is reduced.

The contracting strategy followed forms the foundation on which the responsibilities of the clarity of roles is a part of the transactional aspect of the construction contract.

## The modern contract

### Payment operating mechanisms

Payment operating mechanisms links with both clarity of roles and fairness, as payments must be made by the Employer when the Contractor delivers on expectations and defined in the contract. The mechanisms that are used is largely dependent on the pricing strategy that is followed. The pricing strategy in turn is determined by the contracting strategy that will best serve the requirements of the project.

The abovementioned pillars incorporate the requirements set out by Howell in **section 5.4** under broader terms, by focussing on the principles rather than individual issues.

## 5.6 ASPECTS OF CONSTRUCTION CONTRACTS

The Project Management Body of Knowledge (PMBOK) lists the following aspects that need to be balanced to successfully manage a project. (Project Management Institute, Inc., 2013)

- Scope
- Quality
- Schedule
- Budget
- Resources
- Risk

According to Howell (1991) there are three aspects that are the primary concern of parties involved in a construction contract: **Time**, **Cost** and **Quality**. A fourth aspect, **Scope**, is also commonly found.



## The modern contract

Various variations of the abovementioned aspects are found in literature, the most common being the “**Project Management Triangle**” (also known as the “*Iron Triangle*” or “*Triple Constraint*”) containing the **Scope**, **Quality**, **Schedule** and **Budget**. Sometimes synonyms are used for the terms as **Figure 5.3** illustrates.

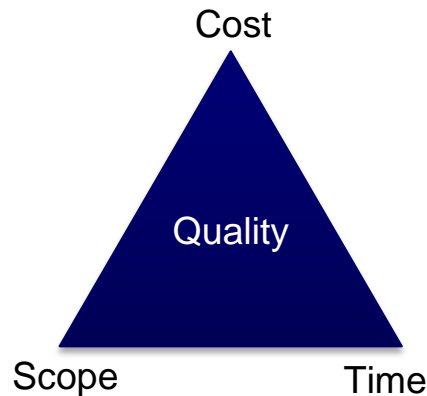


FIGURE 5.3 THE TRIPLE CONSTRAINT (HAUGHEY, 2013)

There are many different versions of this relationship, but they are all similar in the fact that managing the four aspects (**cost**, **time**, **quality** and **scope**) are of high importance in construction projects.

External factors beyond the control of parties in contractual agreement may influence the abovementioned aspects and force a change in circumstances. Construction contracts therefore make provision for **claims** by which the Contractor or the Employer may be compensated for the change in circumstances. If there is disagreement between parties on the settlement of such claims, a **dispute** arises that could potentially follow legal proceedings. Typically, alternative dispute resolution processes are followed before legal proceedings are considered.

For the purpose of this study the information obtained in this section was combined to provide the following five aspects that the modern contract must address.

- Time
- Cost
- Quality
- Risks
- Claims and disputes

## 5.7 CHAPTER SYNTHESIS

This section summarises the essential characteristics of the modern contract and all except for the legal requirements were included in the content analysis or the survey or the used in the overall conclusion.

### 5.7.1 LEGAL REQUIREMENTS

First and foremost, a modern construction contract must fundamentally fulfil the legal requirements as described in **chapter 4**. As both the GCC 2010 and the GCC 2004 are endorsed by the CIDB, which is a government body, it can be safely assumed that both these documents comply with the legal requirements. Further research on this matter would therefore be redundant and it was not included as part of the content analysis, nor was it included in the survey.

- **Consensus**
  - Both parties must be in agreement that they are to be contractually bound to perform as the contract requires
- **Contractual capacity**
  - Both parties must be legally eligible to enter into the contract
- **Formalities**
  - Although formal documentation is not required from a legal perspective, a construction contract should contain all relevant technical data and designs
- **Certainty**
  - The roles and responsibilities of both parties must be clear to the extent that there is absolute certainty and understanding of the required performance
- **Possibility of performance**
  - The construction to be performed must be possible, as well as practical under the conditions of the contract
- **Legality**
  - The construction to be performed may not contravene any law and must adhere to all relevant legislation and regulations

## The modern contract

**Figure 5.4** graphically shows the abovementioned legal requirements.



**FIGURE 5.4 LEGAL REQUIREMENTS**

### 5.7.2 THREE PILLARS OF THE MODERN CONTRACT

A legally sound contract does not necessarily guarantee the successful completion of a construction project. The contract conditions must be based on the three principles of **Fairness, Clarity of roles** and **Payment operating mechanisms** to ensure that the relational and transactional aspects of the construction contract are integrated effectively to maximise the potential of success.

A survey was done that contained a question that specifically referred to the three pillars of the modern contract and how well the GCC 2010 and the GCC 2004 were perceived to address these pillars. The survey is discussed in **Chapter 7**.

## The modern contract

### 5.7.3 COOPERATIVE PROBLEM SOLVING

The modern contract should be based on a foundation of mutual trust and the acknowledgement of interdependence. This relational approach will support the successful completion of the project by emphasizing the accomplishment of one party to the benefit of the other.

When challenges arise during execution of the Works, a sound relationship will ensure that problems are solved effectively and unforeseen risks can be allocated and handled without major complications.

While the foundation of the modern contract is relational in nature, the structures and mechanisms of the contract, such as payments, variation orders, delays and quality checks should be clear and systematic. This will ensure that once there is agreement on the solution that should be implemented to address the problem, the transaction will be processed efficiently.

## The modern contract

**Figure 5.5** illustrates the interlinking **relational and transactional components** that must work together to **achieve project success**. These components are referred to in the concluding chapter of the thesis.



**FIGURE 5.5 RELATIONAL AND TRANSACTIONAL COMPONENTS TO PROJECT SUCCESS**

#### 5.7.4 ASPECTS OF CONSTRUCTION CONTRACTS

As mentioned in **section 5.6**, there are five aspects that a modern contract must address. The wording of some of the five aspects identified was changed to coincide with the headings of the GCC 2010.

Time	=	<b><i>Time and related matters</i></b>
Cost	=	<b><i>Payment and related matters</i></b>
Quality	=	<b><i>Quality and related matters</i></b>
Risks	=	<b><i>Risks and related matters</i></b>
Claims and disputes	=	<b><i>Claims and disputes</i></b>

## The modern contract

The abovementioned aspects, as shown in **Figure 5.6**, encompass all of the aspects that the modern construction contract should address. These aspects form a vital part of the survey, especially with regards to bias inclinations.



**FIGURE 5.6 ASPECTS OF CONSTRUCTION CONTRACTS**

## 6 CONTENT ANALYSIS

In this chapter the physical documents are compared to one another. The layout of the documents, a clause-by-clause comparison and the addition or omission of clauses from the GCC 2004 to the GCC 2010 are discussed. The trends identified in the clause-by-clause analysis are then discussed.

The first section compares the physical layout of the documents themselves. The length of the documents and specifically the number of headings, sub-headings and clauses are compared.

The second section is a summary of the clause-by-clause analysis that can be found in **Appendix B: Clause-by-clause analysis**. New clauses, revised clauses and clauses that are omitted are discussed. The effect of the clause may be:

- **Neutral**
- **In favour of the Contractor**
- **In favour of the Employer**

The overall effects and trends identified during the analysis are discussed in **section 6.3**.

### 6.1 PHYSICAL LAYOUT

The GCC 2004 document was 71 pages long with an additional 7 pages as preface. Of the 71 pages, 46 pages contained the clauses of the conditions. Behind the clauses the Form of Offer and Acceptance, Contract Data, Form of Guarantee, Contract, Price Adjustment Schedule, Lists of Duties and Subject Index were found and consisted of 25 pages. The conditions consisted of 58 Headings and 193 clauses, excluding sub-clauses.

At 110 pages long, the GCC 2010 was substantially longer than the GCC 2004. The preface was 15 pages long. The structure of the GCC 2010 was somewhat different to that of the GCC 2004 as the number of headings were reduced in an effort to combine aspects of similar nature. To accommodate for this, sub-headings were added to still provide clear definition to the different clauses. The same supporting documents found in the GCC 2004 were 39 pages long. Adjudication Board Rules and a few *pro forma* were new additions to the GCC 2010. The conditions were made up of 10 headings, 78 sub-headings and 233 clauses.

## Content analysis

The new grouping structure dramatically reduced the number of headings from 58 to 10. The numbering below shows the GCC 2010 structure in **bold** and the related GCC 2004 item is shown in brackets. The headings in the GCC 2010 all started on a new page, making it easier to clearly group the individual sections.

- 1. **Heading** (New)
  - 1.1. **Sub-heading** (Heading – GCC 2004)
    - 1.1.1. **Clause** (Sub-clause – GCC 2004)
      - 1.1.1.1. **Sub-clause** (Paragraph – GCC 2004)

**Table 6.1** illustrates the difference in numbering used by the two editions. The GCC 2010 structured clauses more effectively by grouping some headings from the GCC 2004 as sub-headings under new headings.

TABLE 6.1 NUMBERING STRUCTURE COMPARISON

GCC 2004	GCC 2010
1. Heading	1. Heading
1.1. Clause	1.1. Sub-heading
1.1.1. Sub-clause	1.1.1. Clause
1.1.1.1. Paragraph	1.1.1.1. Sub-clause

**Table 6.2** shows comparative statistics on the physical aspects of the documents.

TABLE 6.2 COMPARATIVE STATISTICS

Item	GCC 2010	GCC 2004
Preface pages	15	7
Conditions of contract pages	71	46
Appendices pages	39	25
<b>Total pages</b>	<b>125</b>	<b>78</b>
Headings	10	58
Sub-headings	78	0
Clauses	233	193
Average clauses per heading	23	3
Average clauses per sub-heading	3	-
Most clauses per heading	47	10
Most clauses per sub-heading	9	-



## Content analysis

## 6.2 CLAUSE-BY-CLAUSE ANALYSIS

The author did a clause-by-clause analysis using the GCC 2010 as the baseline and comparing the equivalent clause in the GCC 2004. The entire analysis can be found in **Appendix B: Clause-by-clause analysis**.

This section discusses the influence that the new clauses had on the document and how the revisions that were made impacted the Contractor and the Employer. The impact of clauses that were removed is also discussed. The impact was rated as being either **in favour of the Contractor**, **in favour of the Employer** or **neutral**.

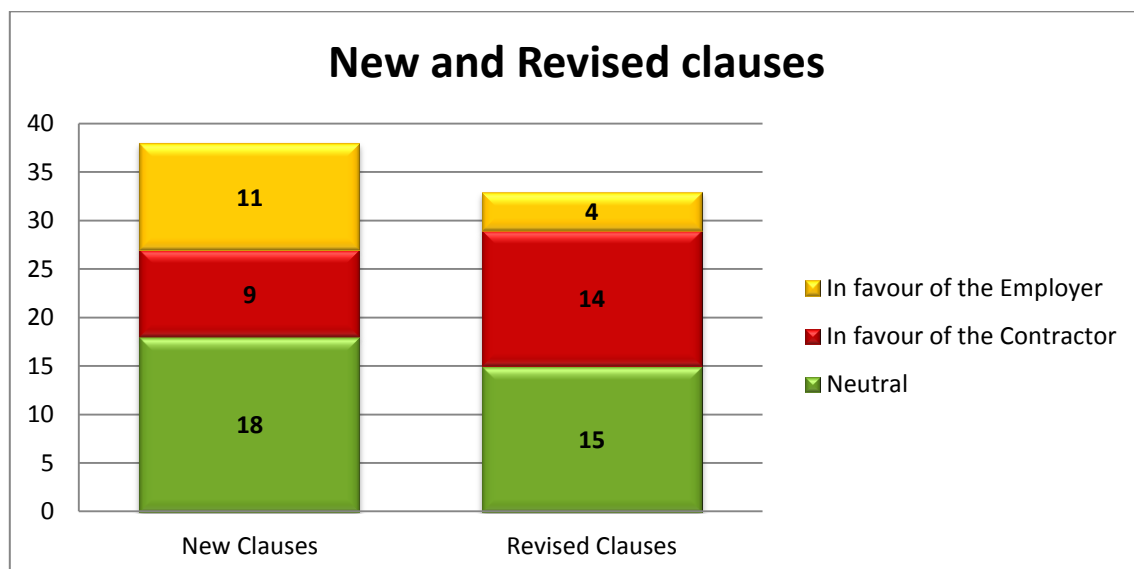
### 6.2.1 OVERALL RESULTS

There are 38 new clauses in the GCC 2010 that were not in the GCC 2004. 18 clauses are neutral, 9 are in favour of the Contractor and 11 in favour of the Employer.

There were 33 clauses that underwent significant revision from the GCC 2004 to the GCC 2010. 14 revisions are neutral, 14 in favour of the Contractor and 5 in favour of the Employer.

Additionally, there were 10 new definitions added to the list of definitions.

**Figure 6.1** shows the abovementioned statistics in a stacked histogram format.



**FIGURE 6.1 NEW AND REVISED CLAUSES**

## Content analysis

### 6.2.2 HEADING 1: GENERAL

There was only one new neutral clause under the GENERAL heading.

#### New clauses

##### **Neutral**

The new “Language” clause is neutral because it only stipulates that English shall be the default language used in the Contract and all written correspondence.

#### Revised clauses

There are no revisions made to any clauses.

#### Removed clauses

There are no clauses omitted.

### 6.2.3 HEADING 2: BASIS OF CONTRACT

There are 4 new clauses under the BASIS OF CONTRACT heading and no revised or removed clauses.

#### New clauses

##### **In favour of the Contractor**

The “*Available data*” clause states that the Employer is responsible for delivering all relevant data to the Contractor. Furthermore, the “*Technical data*” clause stipulates that the Contractor is entitled to make a claim if the data provided is inaccurate and causes any delay or additional costs. Both of the aforementioned clauses are in favour of the Contractor.

##### **In favour of the Employer**

The clauses, “*Inspection of the Site*” and “*Obtaining information*”, places the responsibility on the Contractor to ensure that all attainable information is obtained that may influence the Works. The Contractor is also deemed to have inspected the Site.

## Content analysis

### Revised clauses

There are no changes made to any clauses.

### Removed clauses

There are no clauses omitted.

#### 6.2.4 HEADING 3: ENGINEER

There is only one new clause added to the ENGINEER heading.

### New clauses

#### **Neutral**

The new clause makes provision for the Employer to authorise an agent responsible for representing the Employer in matters relevant to the Occupational Health and Safety Act.

### Revised clauses

There are no changes made to any clauses.

### Removed clauses

No clauses are removed.

#### 6.2.5 HEADING 4: CONTRACTOR'S GENERAL OBLIGATIONS

Two new clauses are added under the "Subcontracting" sub-heading, while three clauses are removed.

### New clauses

#### **In favour of the Employer**

The first clause, "*Assignment in the case of termination*", allows the Employer to take over any subcontract in which the Employer was consulted on the selection of the subcontractor. The second clause states that the Employer is assigned any benefit or continued obligation extending beyond the date of final approval that can be taken from all subcontracts. Both these clauses are in favour of the Employer.

## Content analysis

Revised clauses

There are no changes made to any clauses.

Removed clauses**In favour of the Contractor**

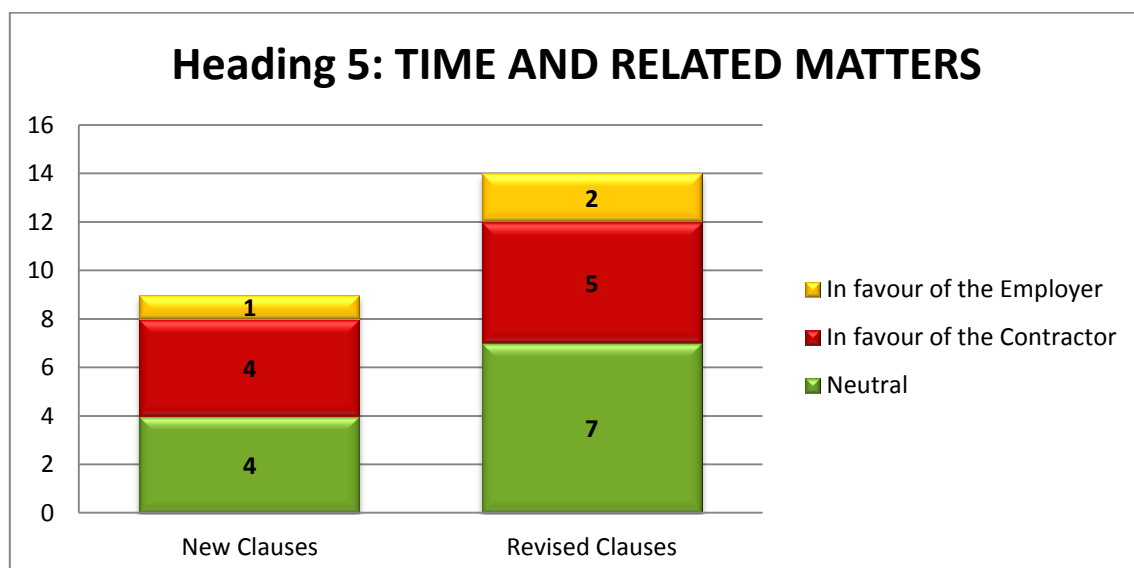
The clause that disallowed the Contractor to subcontract part of the contract without first obtaining consent from the Engineer has been removed, giving the Contractor more flexibility in terms of subcontracting.

As the Contractor no longer requires the Engineer's consent to subcontract, the *"No consent required"* clause is obsolete.

The omission of the clause *"Payment to subcontractor selected by Employer and Contractor"* means that the Employer no longer has the right to withhold payment to the Contractor in order to pay a subcontractor directly. As all subcontracts are between the subcontractor and Contractor this omission is in favour of the Contractor.

## 6.2.6 HEADING 5: TIME AND RELATED MATTERS

There are 9 new clauses and 14 revised clauses under the TIME AND RELATED MATTERS heading, as **Figure 6.2** shows. There are two clauses omitted from the GCC 2004.



**FIGURE 6.2 TIME AND RELATED MATTERS NEW AND REVISED CLAUSES**

## Content analysis

### New clauses

#### **Neutral**

The “*Time calculations*” clause clearly states how timespans are to be calculated. The aim of the clause is to remove ambiguity surrounding start dates and non-working days. “*Commencement of the Work*” clarifies exactly when the Contract commences.

The Contractor is required to give notice to the Engineer if any work is proposed to be done during non-working times, in accordance with the “*Notice for work during non-working times*” clause.

When acceleration is more desirable than extension of time, the “*Acceleration instead of extension of time*” clause makes provision for this option.

#### **In favour of the Contractor**

According to the “*Time to instruct commencement of the Works*” clause, after the Contractor submits all the required documentation to the Engineer, the Engineer has seven days to instruct the Contractor to commence execution or resubmit the documents. If the Engineer fails to deliver an instruction, the commencement date is on the expiry of the seven days.

If access to the construction site is not to be exclusive to the Contractor, it shall be clearly stated in the Contract Data. If no limitations are set, the Contractor shall have exclusive access.

“*Approval of the programme*” requires the Engineer to approve or instruct amendments to the programme submitted by the Contractor within seven days. If the Engineer fails to provide any instruction, the programme will be deemed to be approved. This is in favour of the Contractor.

In the event that the Employer occupies the Works before the Due Completion Date, the date of occupation will be deemed the Due Completion Date. This is set out in the “*Occupation by the Employer*” clause.

## Content analysis

### **In favour of the Employer**

The “*Unacceptable information*” clause entitles the Employer to terminate the Contract if the documentation that the Contractor has to submit is unacceptable or not submitted within the number of days stipulated in the Contract Data.

### Revised clauses

14 clauses have been revised of which 7 changes are neutral, 5 in favour of the Contractor and 2 in favour of the Employer.

#### **Neutral**

The Engineer no longer has the authority to extend the time limit that the Contractor has to submit a claim in the “*Delays in giving possession*” clause.

The “*Time for Practical Completion*” states that the Works will be completed by the Due Completion Date. The effect is that the Due Completion Date is now a specific date and no longer a number of days from commencement of the Works. Any time extension will thus change the date and not the number of days.

The requirements of the programme of Works is described in the “*Contents of the programme*” clause. This reduces the risk of ambiguity for the Contractor and clarifies what is expected.

“*Review and adjustment of the programme*” makes provision for a monthly review of the programme and cash flow forecast. It also specifies when the Engineer can instruct the Contractor to adjust the programme.

The restriction on working on Sundays is removed from the “*Non-working times*” clause, as well as the requirement of submitting designs and documents in triplicate by the Contractor in the “*Engineer to approve Contractor’s designs and drawings*” clause.

The default ten year time period in the “*Latent defects liability*” clause is revised to refer to the period specified in the Contract Data. This means that the period can be reduced or extended as required.

## Content analysis

### **In favour of the Contractor**

The Employer is required to give the Contractor the right of access to the Site on the instruction of the Engineer according to the *“Access to and possession of Site”*.

If Practical Completion is required before the Due Completion Date, the *“Acceleration”* clause states that the Engineer can request a revised programme from the Contractor or the Contractor can submit a proposed revised programme.

*“Engineer’s failure to comply timeously”* allows the Contractor 28 days to submit a claim for delay or costs incurred if the Engineer fails to deliver additional information or documentation that the Contractor requires to perform the Works.

Increased clarity is brought to the clause, *“Delays attributable to the Employer”*, regarding the time the Contractor has to submit a claim and the commencement of that time. The increase in clarity prevents the Employer from using doubt of meaning to protect self-interest.

The Engineer is required to state the cause for any suspension of the Works that the Contractor is ordered to comply with.

### **In favour of the Employer**

The *“Commencement of the Works”* clause is significantly revised in favour of the Employer. The Contractor is required to submit documentation for approval by the Engineer, as specified in the Contract Data. The Engineer will only instruct the Contractor to commence with the execution of the Works after the documents are approved.

An initial programme must be submitted by the Contractor for approval by the Engineer as part of the documentation before the commencement of the Works.

## Content analysis

Removed clauses**Neutral**

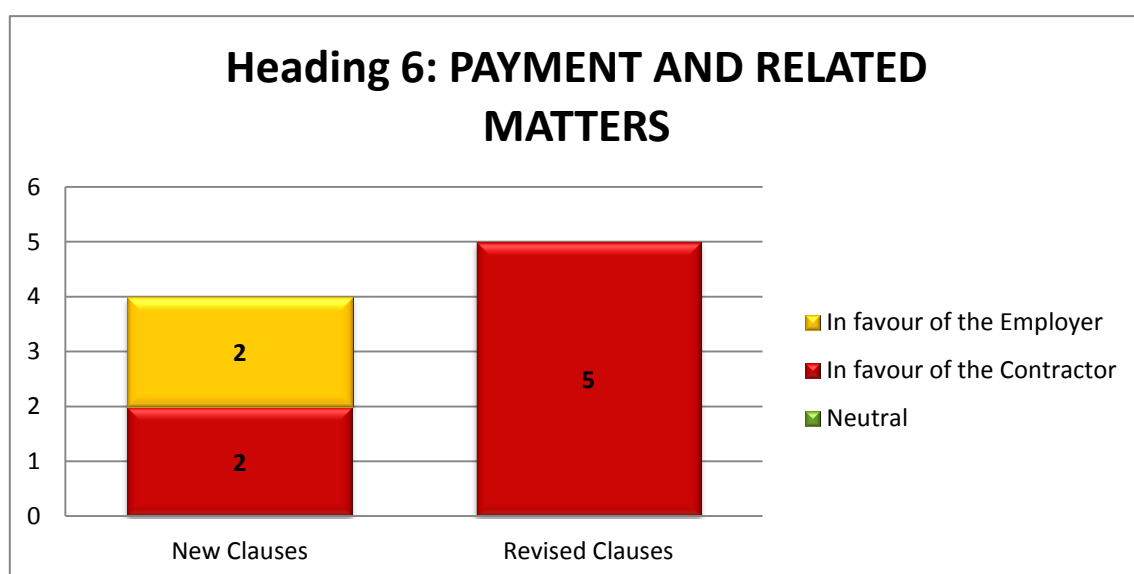
The “*Order of the Works*” clause was redundant and thus removed because the programme submitted to the Engineer before commencement describes the order in which the Works will be executed by the Contractor.

**In favour of the Contractor**

The clause “*Possible action by the Employer*” under the CLEARANCE OF SITE heading in the GCC 2004 was omitted. This prevents the Employer from incurring any costs that the Contractor may be liable for without the Contractor’s knowledge or consent.

## 6.2.7 HEADING 6: PAYMENT AND RELATED MATTERS

As shown in **Figure 6.3**, there are 4 new clauses and 5 revised clauses under the PAYMENT AND RELATED MATTERS heading.



**FIGURE 6.3 PAYMENT AND RELATED MATTERS NEW AND REVISED CLAUSES**



## Content analysis

### New clauses

#### **Neutral**

There are no neutral clauses.

#### **In favour of the Contractor**

Both clauses in favour of the Contractor are under the *Value of variations* sub-heading. “*Delivering and applying the variation*” states that the Engineer is required to deliver a valuation of a variation to the Contractor and to the Employer within 28 days of having issued the Variation Order. The Contractor is entitled to raise a dispute if the valuation is unacceptable.

The “*Delay in delivering valuation*” clause entitles the Contractor to make a claim if a valuation is not received within the allowed 28 days.

#### **In favour of the Employer**

The two clauses in favour of the Employer are both related to the contract security that is to be provided by the Contractor. If the Contractor fails to select or provide a suitable security, the “*Contractor failing to select or provide security*” clause states that the security will be ten per cent of the value of the Works.

The “*Validity of performance guarantee*” clause, requires the Contractor to ensure that the guarantee does not expire for at least 14 days after the Contractor is entitled to receive the Certificate of Completion.

### Revised clauses

There are 5 clauses that have been revised to favour the Contractor.

#### **In favour of the Contractor**

The most significant revision to the “*Delivery of security*” clause is that the Engineer’s right to withhold payment certificates has been revoked.

The clause “*Orders for variation to be in writing*” has been revised so that the Engineer is no longer allowed to give Variation Orders orally.

## Content analysis

The “*Interim payments*” clause has been revised so that the calculation of amount due to the Contractor for Temporary Works is no longer up to the Engineer, but is based on actual costs incurred by the Contractor.

If the Contractor is dissatisfied with a payment certificate, the “*Delivery, dissatisfaction with and payment of payment certificate*” clause makes provision for the situation.

The rate at which interest is calculated on delayed payment, is the prime overdraft rate charged by the Contractor’s Bank, as stated in the “*Set-off and delayed payments*” clause.

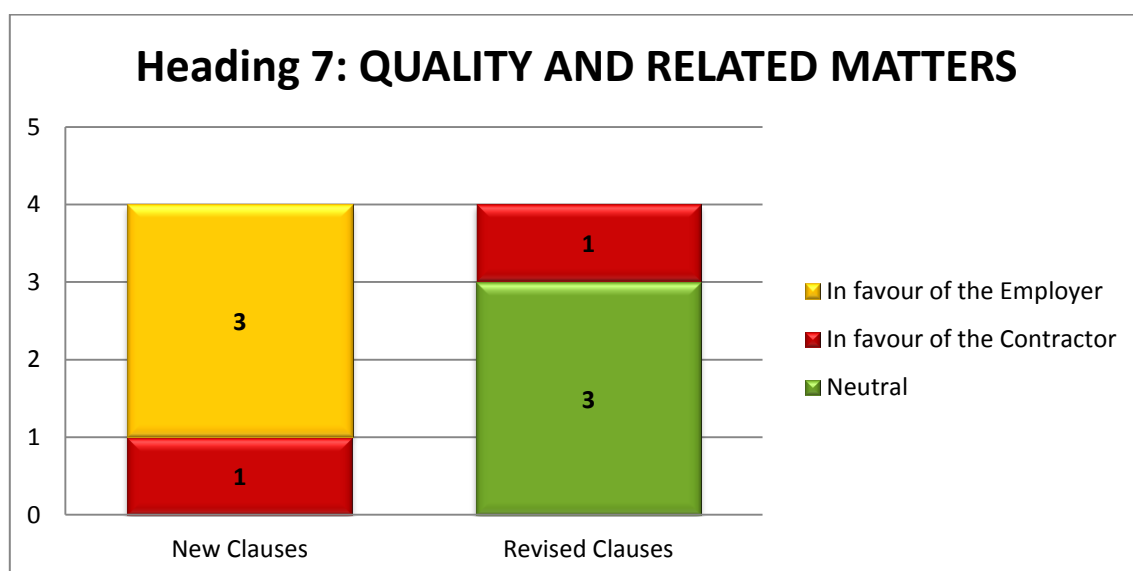
### Removed clauses

#### **Neutral**

The “*Guarantee in lieu of retention*” was omitted as the guarantee and retention money is dealt with under the *Security* sub-heading.

### 6.2.8 HEADING 7: QUALITY AND RELATED MATTERS

4 new clauses are added under the QUALITY AND RELATED MATTERS heading, 3 of which are in favour of the Employer and one in favour of the Contractor. 3 of the revised clauses are neutral and one is revised to favour of the Employer. **Figure 6.4** shows the new and revised clauses under the QUALITY AND RELATED MATTERS heading.



**FIGURE 6.4 QUALITY AND RELATED MATTERS NEW AND REVISED CLAUSES**

## Content analysis

### New clauses

#### **Neutral**

There are no neutral clauses.

#### **In favour of the Contractor**

In the event that delivery of Plant to the Site is delayed because of the Employer, the “*Delay by Employer to take delivery of Plant*” clause entitles the Contractor to make a claim for time or costs incurred due to the delay.

#### **In favour of the Employer**

“*Delivery of Plant to the Site*” requires any Plant to pass testing and be authorised by the Engineer before being allowed on Site.

The clauses, “*Making good and retesting of Plant*” and “*Consequences of failure of retesting Plant*” entitles the Engineer to order the Contractor to address any failed Plant and have it retested at the Contractor’s own cost. Plant that did not pass testing can be rejected or accepted with an adjustment of the Contract price at the discretion of the Employer.

### Revised clauses

#### **Neutral**

The wording of the “*Quality of Construction Equipment*” clause is significantly revised to increase the clarity of the meaning and the responsibilities of the Contractor.

In the “*Access to the Works*” clause, the times that the Contractor is required to facilitate access for the Employer, Engineer or any representative is revised to facilitate access only during working hours.

The Engineer is required to specify a timeframe within which the Contractor is required to remove improper work or material in the “*Removal of improper work and materials*” clause.

#### **In favour of the Contractor**

The “*Cost of making good of defects*” clause is revised to remove the opinion of the Engineer in determining which party is responsible for carrying the cost of remedial work. Furthermore, the calculation of the cost of remedial work that the Contractor is entitled to be compensated for, is revised to be calculated according to the “*Value of variations*” clause.

## Content analysis

Removed clauses

The Engineer's right to request Construction Equipment information from the Contractor is revoked by the omission of the "*Information in respect of Construction Equipment*" clause.

## 6.2.9 HEADING 8: RISKS AND RELATED MATTERS

Under the RISKS AND RELATED MATTERS heading there are no new clauses and 3 clauses are revised. One is in favour of the Employer, one in favour of the Contractor and one is a neutral revision, as can be seen in **Figure 6.5**.

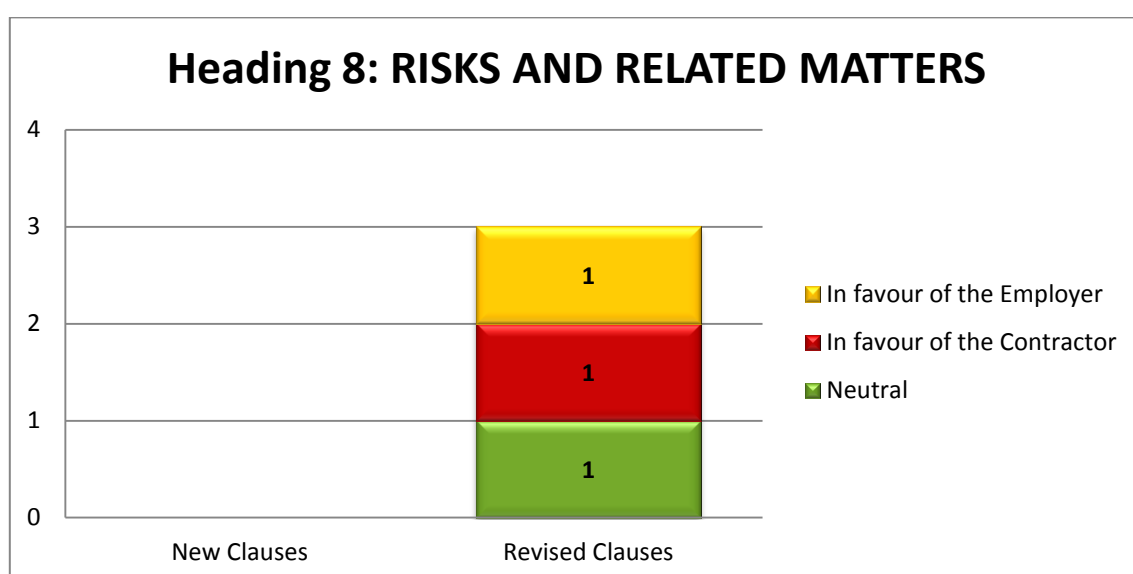


FIGURE 6.5 RISKS AND RELATED MATTERS NEW AND REVISED CLAUSES

New clauses

There are no new clauses under RISKS AND RELATED MATTERS.

Revised clauses

Three clauses are revised. One is neutral, one in favour of the Contractor and the other is in favour of the Employer.

**Neutral**

The second sub-clause of the "*Damage or physical loss*" clause states that the cost of repairing work damaged from situations for which the Contractor cannot be held responsible will be calculated according to the "*Value of variations*" clause.

## Content analysis

**In favour of the Contractor**

The Contractor is no longer held responsible for sub-contractor's transport arrangements in the *"Excessive loads and traffic"* clause.

**In favour of the Employer**

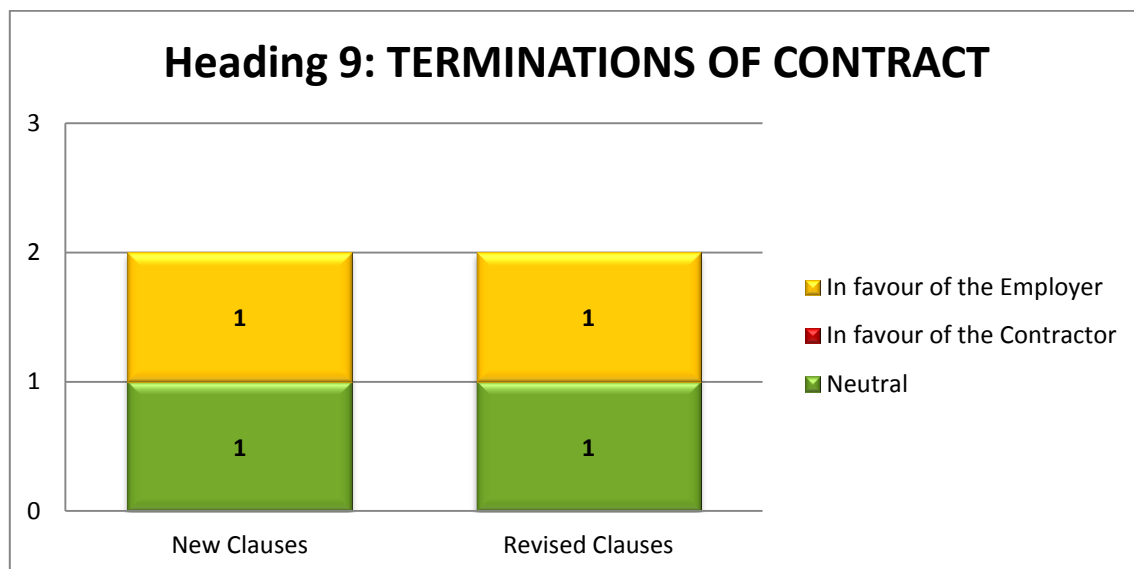
The Contractor is additionally required to effect and maintain insurances that cover death, injury or damage to property when the Works involves removal of, or interference with, support elements of structures.

Removed clauses

There were no clauses removed.

## 6.2.10 HEADING 9: TERMINATIONS OF CONTRACT

As shown in **Figure 6.6**, one new neutral clause and one new clause in favour of the Employer have been added. Two clauses are revised with one being neutral and the other in favour of the Employer.



**FIGURE 6.6 TERMINATIONS OF CONTRACT NEW AND REVISED CLAUSES**

New clauses**Neutral**

In the event that the Contractor become insolvent or is liquidated, the *"Notices to trustees/liquidators"* clause under the *Termination by Employer* sub-heading makes provision for notices to be delivered by the Employer.

## Content analysis

### **In favour of the Contractor**

There are no new clauses added in favour of the Contractor.

### **In favour of the Employer**

If the structure to which additions or alterations are to be made is considerably destroyed, the “*Existing structure substantially destroyed*” clause entitles the Employer to terminate the Contract.

## Revised clauses

### **Neutral**

The “*Increased costs*” clause has been revised so that the Contractor has to inform the Engineer within 14 days of becoming aware of any increase in cost.

### **In favour of the Contractor**

There are no clauses revised in favour of the Contractor.

### **In favour of the Employer**

The conditions set out in the “*Termination by the Employer*” clause, that gives the Employer the right to terminate the contract, are expanded to clearly stipulate the conditions and emphasises the importance of the Contractor ‘s requirement to comply with the programme.

## Removed clauses

There were no clauses removed from the TERMINATIONS OF CONTRACT heading.

## Content analysis

## 6.2.11 HEADING 10: CLAIMS AND DISPUTES

The CLAIMS AND DISPUTES heading gained the most new clauses of all headings. There are 11 new clauses under the heading that are all neutral. 5 clauses are revised, 3 being neutral and 2 are in favour of the Contractor as seen in **Figure 6.7**.

The “*Mediation*” clause in the GCC 2004 has been omitted and replaced by the “*Amicable settlement*” clause, while the “*Special disputes*” has been removed without replacement.

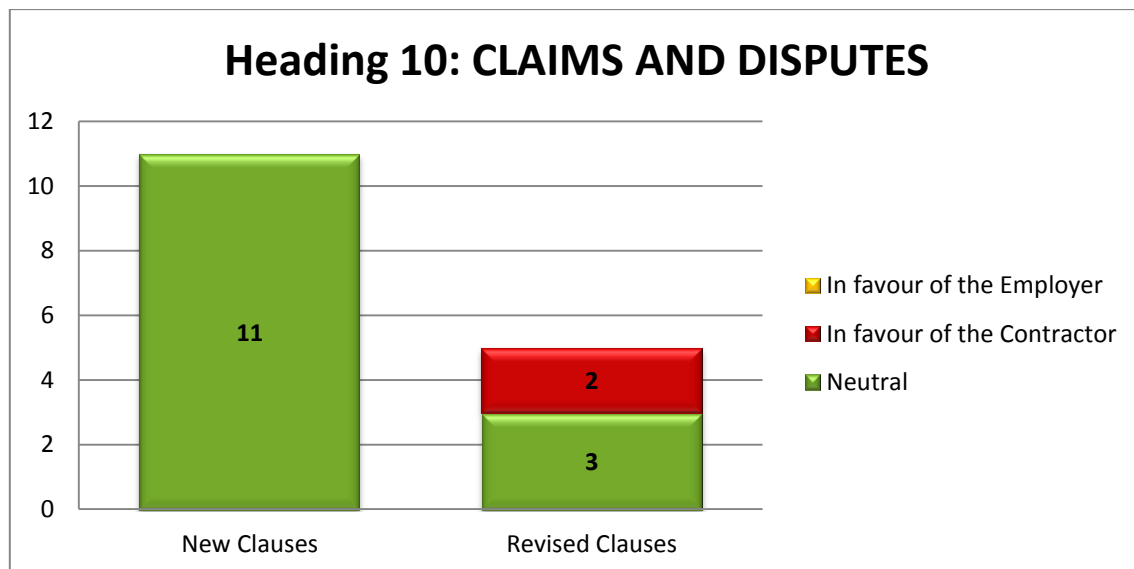


FIGURE 6.7 CLAIMS AND DISPUTES NEW AND REVISED CLAUSES

#### New clauses

##### **Neutral**

The “*Failure to claim dissatisfaction*” clause allows 28 days for the Contractor or the Employer to submit a claim, after which the right to claim is forfeited.

The clauses in the GCC 2004 regarding mediation have been removed and an alternative option is introduced in the GCC 2010 in the form of “*Amicable settlement*”. Amicable settlement procedures allows more flexibility in finding a solution for disputes by any technique as agreed upon by both the Employer and the Contractor.

The “*Dispute resolution by amicable settlement*” stipulates that both parties can settle any dispute or claim amicably, without influencing other proceedings at any time.

## Content analysis

If the party that receives an invitation to amicable settlement rejects it, fails to respond within 14 days, or the settlement fails, then the clause *“Amicable settlement failure”* refers the matter to adjudication, arbitration or court.

Any agreement between the parties is binding to the extent that it has been correctly recorded, as stated in the *“Binding amicable settlement”* clause.

*“No reference of amicable settlement outcomes”* states that only the portion of any settlement that has been agreed upon can be referred to in further proceedings. Any other evidence or statement cannot be referred to.

The clause *“Dispute resolution by standing adjudication”* makes provision for the Employer and Contractor to appoint the members of the Adjudication Board, if the Contract Data has made provision for a standing Adjudication Board. The appointment must be done within 56 days of the Commencement Date.

The Adjudication Board Rules appendix is referred to in the *“Rules for adjudication”* as the standard according to which adjudication must be done.

The new sub-heading *Disagreement with Adjudication Board’s decision* contains 3 clauses that makes provision for any disagreement that the Contractor or Employer may have with the outcome of adjudication.

Either party has the right to disagree with any decision made by the Adjudication Board as stated in the *“Disagreement with Adjudication Board’s decision”* clause. Furthermore, it stipulates that the decision cannot be disputed before 28 days or after 56 days of the decision being made.

If a decision is not disputed, but a party fails to comply with the decision, the *“Failure to comply with a decision”* clause entitles the other party to refer the matter to arbitration or court proceedings.

In the event that the Adjudication Board does not reach a decision within the time set out in the Adjudication Board Rules, *“Failure to give a decision in time”* entitles either party the right to give notice of referring the matter to arbitration or court within 28 days after the decision should have been given.



## Content analysis

As there has to be agreement between both parties on the appointment of dispute resolving persons, “*Appointment of dispute resolving persons*” makes provision for the possibility that agreement cannot be reached within 7 days. After the 7 days the President of SAICE or someone nominated by the President will appoint the persons.

### Revised clauses

#### **Neutral**

The “*Dissatisfaction claim*” clause has been revised so that both the Contractor and the Employer are entitled to deliver a dissatisfaction claim to the Engineer.

With the addition of the amicable settlement option to resolve disputes, the “*Dispute to be referred*” clause has been revised to immediately refer any dispute to adjudication, but makes provision for amicable settlement.

If no standing Adjudication Board is set up, the “*Dispute resolution by ad-hoc adjudication*” clause refers the dispute to ad-hoc adjudication.

#### **In favour of the Contractor**

The clause “*Contractor’s claim*” has been revised to remove the Engineer’s authority to require any additional information from the Contractor. Furthermore, the requirements that the clause sets out are more clearly defined.

Any work that the Contractor has done, that should have been submitted as a claim but that the Contractor was not aware of before the 28 day time frame has elapsed, is covered by the rates set out in the Pricing Data. This is stated in the “*Extended period for claim*” clause.

### Removed clauses

#### **Neutral**

The “*Mediation*” clause has been omitted as the process is replaced by amicable settlement.

Similarly the “*Special disputes*” clause of the GCC 2004 is not reused as all disputes follow the same procedure in the GCC 2010.

## Content analysis

## 6.3 CHAPTER SYNTHESIS

The results of the clause-by-clause analysis of headings 5 to 10 are presented in following groups:

- Time and related matters
- Payments and related matters
- Quality and related matters
- Risks and related matters
- Claims and disputes

This grouping allows the results of the analysis to be compared with the results of the survey that is discussed in **Chapter 7**.

The most revisions of the GCC (one third of the total) were made to **time and related matters** followed by **claims and disputes**. The least number of revisions were made to **risks and related matters**. The sum total of new and revised clauses of the individual groups are compared in **Figure 6.8**.

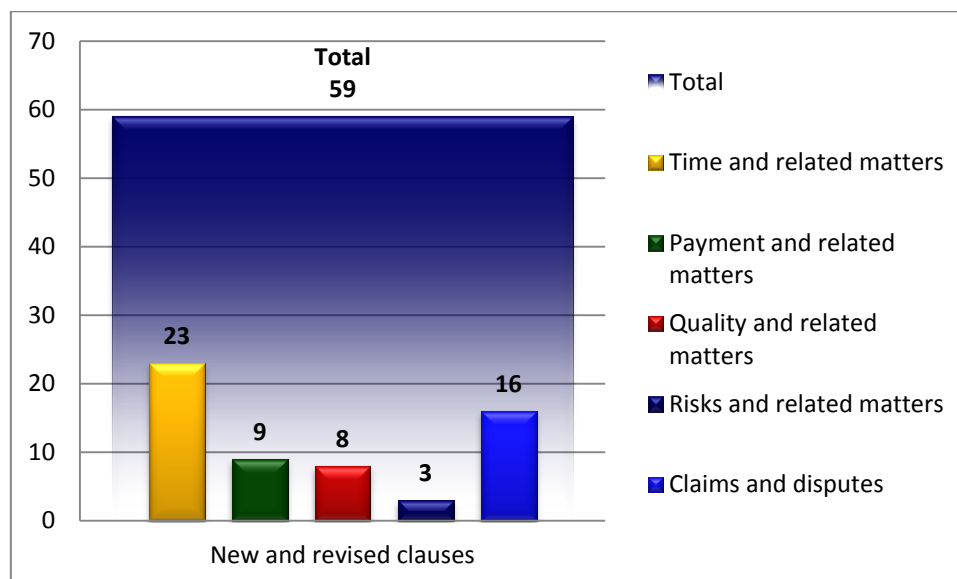
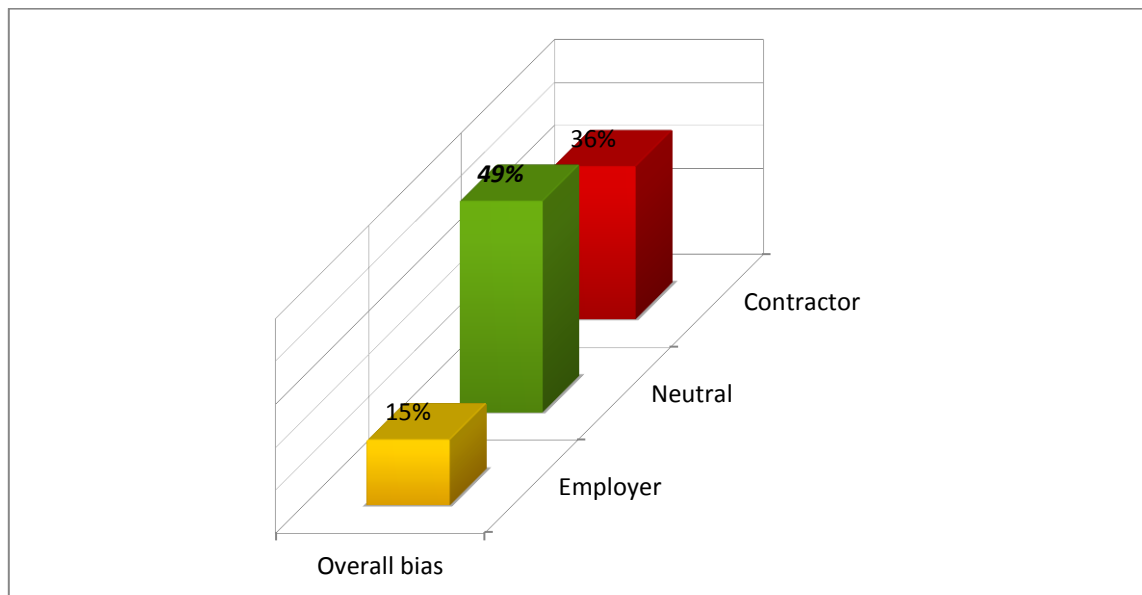


FIGURE 6.8 NUMBER OF NEW AND REVISED CLAUSES

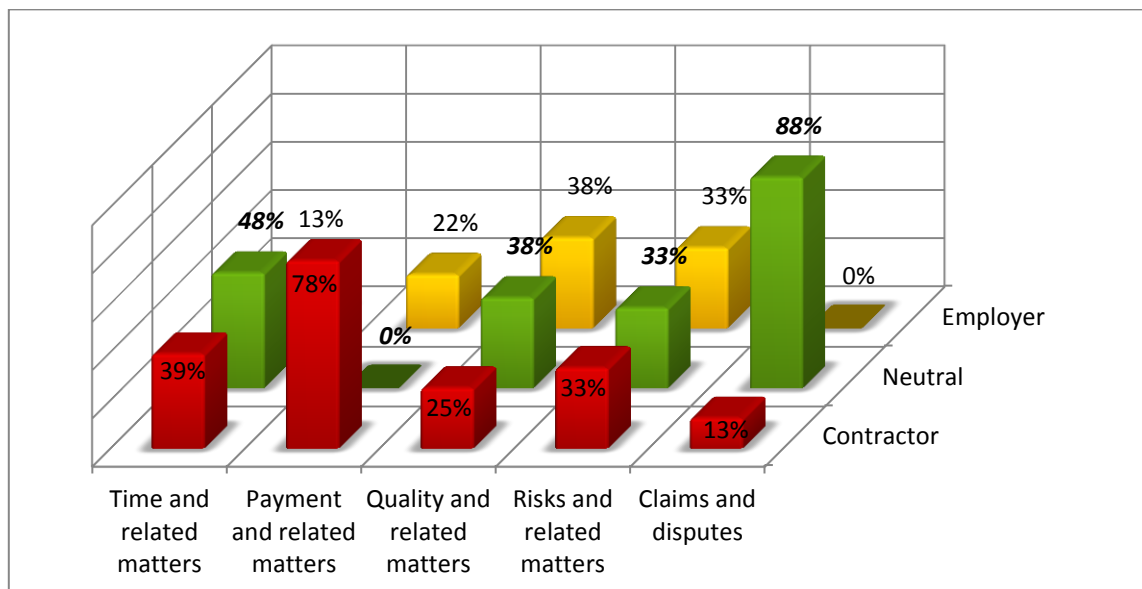
## Content analysis

**Figure 6.9** shows that 49% of all new and revised clauses in the GCC 2010 were neutral in nature while 36% were in favour of the Contractor. Only 15% of all new and revised clauses were in favour of the Employer.



**FIGURE 6.9 SUMMARY: CLAUSE-BY-CLAUSE ANALYSIS – ALL NEW AND REVISED CLAUSES**

The individual response distribution of favour between the five groups is shown in **Figure 6.10**. **Claims and disputes** had a strong change in the neutral category, mainly due to the addition of the amicable settlement clause.



**FIGURE 6.10 SUMMARY: CLAUSE-BY-CLAUSE ANALYSIS**

Clauses linked to **payment and related matters** increased significantly in favour of the Contractor, while there were no neutral additions or changes.

## Content analysis

48% of the changes in **time and related matters**, (that received the highest number of new and revised clauses) were neutral. The number of clauses revised in favour of Contractors were also high at 39% of all the changes.

**Quality and related matters**, as well as **risk and related matters** had a fairly even distribution of new and revised clauses in all three categories.

**Overall there was a notable tendency that the new and revised clauses increased the neutrality of the GCC 2010.** The increase in favour of the Contractor came primarily from clauses that were revised. Most of the new clauses were neutral and there were two more new clauses in the Employer's favour than in favour of the contractor.

Changes to ***time and related matters*** and ***payments and related matters*** significantly **favoured the Contractor**. There was very little difference between the new and revised clauses to distinguish between a Contractor or Employer bias for both *quality and related matters* and *risks and related matters*. **Claims and disputes** had a strong neutral boost by the replacement of the mediation clauses with the amicable settlement process.

## Survey

# 7 INDUSTRY SURVEY

To test the findings of the content analysis and to further establish bias tendencies and the effects of alterations to standard clauses, a survey was set up to gain insights from industry participants who were experienced in managing construction projects.

This chapter discusses the various elements of the survey in the following manner:

- Survey overview
- Survey content
- Survey challenges
- Survey distribution
- Survey analysis
- Survey results

## 7.1 SURVEY OVERVIEW

The survey was completed electronically using a form on Google Drive. This format was decided upon because it was simple to create and distribute to respondents. Furthermore it minimised the amount of paperwork required and was quick and easy for respondents to complete. The survey consisted of five pages with questions primarily answerable by means of a grading system.

The first page was aimed at getting information about the respondent, while the second page had questions regarding the use of standard procurement documents and the respondent's preferred procurement document. The third page had comparative questions relating to the GCC 2010 and GCC 2004. Questions specifically related to alterations to the GCC 2010 standard clauses and perceived bias of the document were asked on page four. The fifth page consisted of open questions that allowed respondents to share expertise on additional matters if they so wished.

Anonymity was also reserved in that no personal details were asked in the actual survey. A question was asked whether the respondent would be willing to participate in further correspondence, if the researcher needed more information. If the answer was yes, a page opened where respondents had to fill in their name and email address. This information was handled with strict confidentiality. A preview of the questionnaire is found in **Appendix A: Online Survey**.

## Survey

### 7.2 SURVEY SHORTCOMINGS

The number of responses received were too few to be a fair representation of the industry, especially the number of responses from Employers and Consultants. This has the effect that the survey results portray the perceptions of a specific group within the industry, rather than being an absolute objective representation. The number of responses from the different role players can be seen in **section 7.7.1**. Due to the low response rate, only the average of all responses were used for the analysis.

Results from Contractors, Employers and Consultants will be used, on occasion, to compare with the overall results.

It is recommended that a survey be done of a similar nature to individually compare the perspectives of Employers, Consultants and Contractors more accurately.

### 7.3 SURVEY CONTENT

There were five pages that formed the survey, each varying slightly in length. Questions were mostly closed questions where respondents had to answer by selecting a suitable grade. A limited number of open questions were given to allow feedback that may assist the research.

#### **Cover page**

The cover page provided information about the research, the survey, contact information about the student and the study leader and requested their willingness to participate.

#### **Survey page 1**

The first page was limited to three questions that would classify the respondent as a contractor, employer or consultant, asked about the years of experience and the last question was aimed at contractors to provide their CIDB grade.

## Survey

### Survey page 2

The second page of the survey had two versions. One for contractors and a different version for consultants and employers. The page was determined based on the answer to the first question on page 1. Although both pages had similar questions, it allowed for questions to be asked in a more specific manner. Page 2 was the only page where the questions posed to Contractors differed from those posed to Consultants and Employers.

#### Consultants' and Employers' page

Standard procurement documents were listed below one another and the respondents were asked to indicate how often the different documents were used in the industry. A five point grading system was used and respondents could select one of the following answers: "Never", "Rarely", "Sometimes", "Often" or "Always".

A second question asking respondents to indicate their preference was asked in a similar format as the first. The grading was also done on a five point system.

A final question was asked about whether the revisions of JBCC, GCC and NEC contracts had improved, deteriorated or had no impact compared to the previous editions.

#### Contractors' page

The questions posed to contractors asked them to indicate how often the different standard procurement documents were used by government employers and also private employers.

The remaining questions were the same as those for Consultants and Employers.

### Survey page 3

This page had questions focussing on comparing the GCC 2010 with the GCC 2004. Some questions were asked twice, with the former having the 2010 edition as objective and the latter the 2004 edition.

The first and second questions were direct comparison questions asking first to indicate whether the revision of the GCC had any influence on preference and secondly, if there was any influence on the number of alterations to standard clauses.

## Survey

The next two questions were asked twice as mentioned in the beginning of this section and asked about the suitability of the GCC for use in different construction types and contract types.

The page was ended with explaining the concept of a modern contract resting on three pillars: fairness, clarity of roles and functions and payment operating mechanisms. The basis of the modern contract is discussed in more depth earlier in this thesis in **Chapter 5**. The question asked respondents to indicate how effective the GCC 2010 and GCC 2004 were in these areas.

### **Survey page 4**

After asking comparative questions, a number of questions were asked focussing only the GCC 2010.

The first question was whether the GCC 2010 was commonly used for design and build, traditional (construction only), research and development or other types of projects.

The next question asked respondents to indicate how often a number of aspects of the standard clauses were altered when prepared by the employer. A follow up question was asked to state the reasons why clauses are altered.

Two questions were asked to determine the perception of bias of the GCC 2010. The first question asked about bias when the clauses were not altered and the second with alterations.

### **Survey page 5**

This page was for open questions where respondents could give feedback that may not have been covered in the survey.

Respondents were also asked whether they would be willing to make themselves available for an interview. If they answered yes to this question, they were asked to provide their contact details and preferred method of communication.



## Survey

### 7.4 SURVEY CHALLENGES

Some respondents misunderstood the first question and selected “Other” as their description. This was a problem when the respondent was a contractor because selecting “Other” automatically placed them on the route to complete page 2 meant for consultants and employers.

A not answerable (“N/A”) option was provided for respondents to give no answer and continue with the survey. One respondent indicated that he could not effectively complete the survey as he had never used the GCC procurement documents before.

### 7.5 SURVEY DISTRIBUTION

With the aid of the study leader, an invitational email asking whether the person was willing to participate in the survey was sent to **Construction Management Programme (CMP)** participants from 2007, 2010, 2011 and 2012. The CMP is a middle management course presented annually to persons in the construction engineering environment.

The persons willing to participate in the survey were then sent an email with the survey details and a link to the online survey.

Additionally the survey was made available to the forty one participants of the CMP in 2013 which was underway when the survey was set up.

To enlarge the sample group, the email with the survey details was sent to a contact in the industry who forwarded it to fifty six industry participants. The individuals in the industry that were sent the email were from construction, consulting and project management sectors.

The response rate and respondent demographic is presented in **section 7.7.1**.

## Survey

## 7.6 SURVEY ANALYSIS

The results are automatically tabulated in a spreadsheet by Google Drive, which reduced the amount of work required to have the data ready for analysis. The data was transferred to a Microsoft Excel worksheet for processing and analysis.

### Step 1:

The first step was to separate the responses received from Contractors, Employers and Consultants. The information provided by the respondents on page 1 of the survey was used to categorise the data and was subsequently used to identify to which role player the data is to be classified. The response data of each of these role players was then placed on separate worksheets to be processed.

### Step 2:

Once the data was divided into the relevant role players the data was converted into numerical values so that scientific analysis could be done.

“Procurement document use” was the first dataset that required converting as the data was in a word format. **Table 7.1** illustrates the format in which the dataset was initially received.

**TABLE 7.1 EXAMPLE: PROCUREMENT DOCUMENT USE DATASET**

Procurement document use				
<b>GCC</b>	<b>JBCC</b>	<b>NEC</b>	<b>FIDIC</b>	<b>Other</b>
Often	Rarely	Sometimes	Always	Never
Always	Never	Never	Sometimes	Never
Sometimes	Sometimes	Often	Often	Sometimes
Never	Sometimes	Always	Sometimes	Rarely
Sometimes	Sometimes	Often	Often	Rarely
Sometimes	Never	Rarely	Often	Never
N/A	N/A	N/A	Sometimes	Often
Often	N/A	N/A	Sometimes	N/A
Sometimes	Rarely	Often	Often	Sometimes
Often	Often	Sometimes	Often	Rarely
Often	N/A	N/A	Often	N/A
Often	Often	Always	Sometimes	Rarely

## Survey

Using a “COUNTIF” statement the table was converted into numerical values and **Table 7.2** shows the processed dataset that is in a numerical format that can be further processed and analysed using mathematical methods.

TABLE 7.2 EXAMPLE: PROCUREMENT DOCUMENT USE PROCESSED DATASET

	<b>GCC</b>	<b>JBCC</b>	<b>NEC</b>	<b>FIDIC</b>	<b>Other</b>
Never	1	2	1	0	3
Rarely	0	2	1	0	4
Sometimes	4	3	2	5	2
Often	5	2	3	6	1
Always	1	0	2	1	0
N/A	1	3	3	0	2

Similarly the “Procurement document preference”, “Impacts of revisions”, “Suitability”, “Contract quality”, “Alterations to standard clauses” and “Contract bias perceptions” datasets were converted to this format.

This conversion was done for the abovementioned datasets on the Contractor, Employer and Consultant spreadsheets.

**Step 3:**

Once the datasets had been converted to numerical format they were further processed to percentage values as shown in **Table 7.3**. The reason for this conversion was to allow for a direct comparison of responses between Contractors, Employers and Consultants.

TABLE 7.3 EXAMPLE: PROCUREMENT DOCUMENT USE – PERCENTAGES

	<b>GCC</b>	<b>JBCC</b>	<b>NEC</b>	<b>FIDIC</b>	<b>Other</b>
Never	8%	17%	8%	0%	25%
Rarely	0%	17%	8%	0%	33%
Sometimes	33%	25%	17%	42%	17%
Often	42%	17%	25%	50%	8%
Always	8%	0%	17%	8%	0%
N/A	8%	25%	25%	0%	17%

## Survey

To analyse data the N/A responses were removed so that only the relevant responses were used. This was done by removing the N/A data and adjusting the remaining data to represent the different options as a percentage of the total relevant data. **Table 7.4** shows the resulting data.

TABLE 7.4 EXAMPLE: PROCUREMENT DOCUMENT USE – PERCENTAGES WITHOUT N/A

	GCC	JBCC	NEC	FIDIC	Other
Never	9%	22%	11%	0%	30%
Rarely	0%	22%	11%	0%	40%
Sometimes	36%	34%	22%	42%	20%
Often	46%	22%	34%	50%	10%
Always	9%	0%	22%	8%	0%

**Step 4:**

In order to obtain a single result from the dataset the individual grades that respondents answered were given definite values. The values are as follows:

- Never = 0%
- Rarely = 25%
- Sometimes = 50%
- Often = 75%
- Always = 100%
- Least preferred = 0%
- Less preferred = 25%
- Neutral = 50%
- Slightly preferred = 75%
- Strongly preferred = 100%

The data as in **Table 7.4** was then multiplied with the abovementioned values and added together to give a single value as shown in **Table 7.5**. This value then represents the overall result for the item in question.

TABLE 7.5 EXAMPLE: RESULTS TABLE

	GCC	JBCC	NEC	FIDIC	Other
0%	0%	0%	0%	0%	0%
25%	0%	6%	3%	0%	10%
50%	18%	17%	11%	21%	10%
75%	34%	17%	25%	38%	8%
100%	9%	0%	22%	8%	0%
<b>Overall score</b>	<b>61%</b>	<b>39%</b>	<b>61%</b>	<b>67%</b>	<b>28%</b>

## Survey

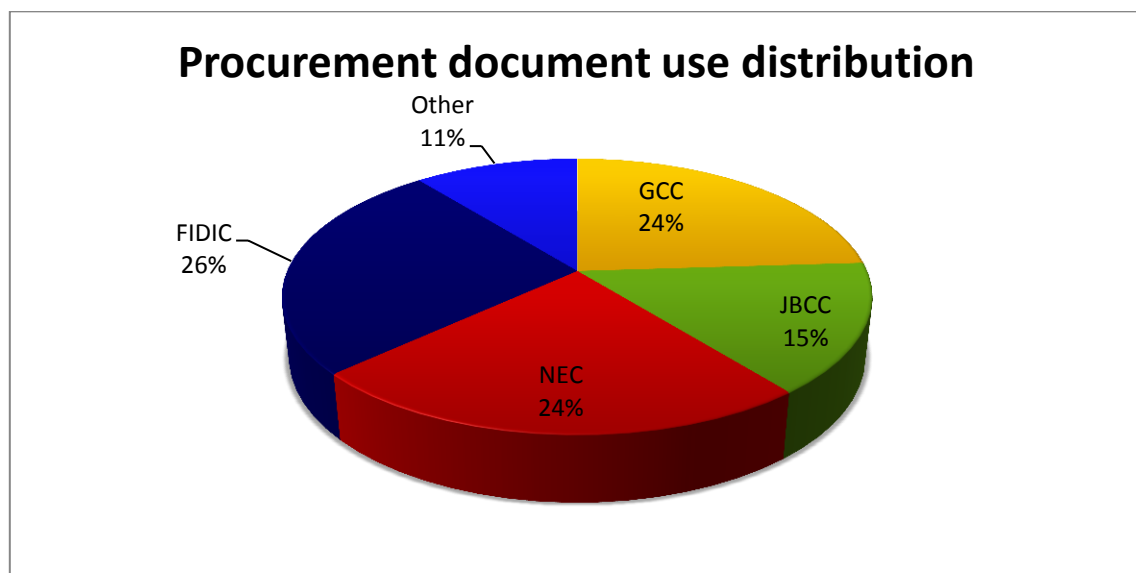
**Step 5:**

Totals from the multiplication table, as in **Table 7.5**, were further processed to compare results within the context of the options available. In the example, **Table 7.6**, the individual totals were added and the sum used to show what the percentage was of the individual item.

**TABLE 7.6 EXAMPLE: PROCUREMENT DOCUMENT USE – DISTRIBUTION**

	<b>GCC</b>	<b>JBCC</b>	<b>NEC</b>	<b>FIDIC</b>	<b>Other</b>	<b>Sum</b>
Total	61%	39%	61%	67%	28%	256%
Use distribution	24%	15%	24%	26%	10%	100%

From the processed data in **Table 7.6** a graphical representation was made as shown in **Figure 7.1**.



**FIGURE 7.1 EXAMPLE: PROCUREMENT DOCUMENT USE DISTRIBUTION**

Graphical representation assisted in comparing the results from Contractors, Employers and Consultants.

## Survey

## 7.7 SURVEY RESULTS

In this section the details of the responses and the respondents are utilised to provide context.

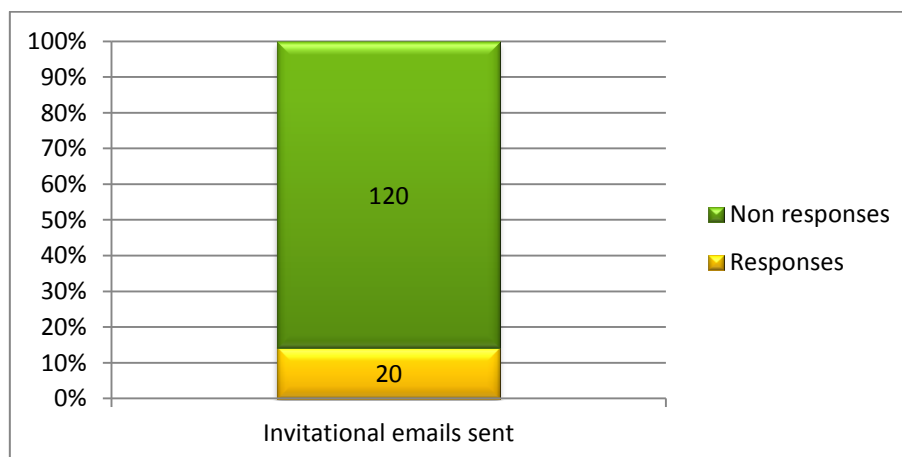
### 7.7.1 RESPONSE RATE AND RESPONDENT DEMOGRAPHIC

The majority of respondents were participants in the Construction Management Programme (CMP) presented at Stellenbosch University. Most individuals who participated in this course come from a contracting environment.

Google Drive was used as the software platform as it provides the user with tools that are simple to use and easy to understand. A form was produced and emailed to the respondents. The software automatically places the data in a spreadsheet, assisting in the data analysis procedure.

#### 7.7.1.1 RESPONSE RATE

The invitation email was sent to a total of 140 CMP participants and individuals in the industry. Twenty individuals responded indicating their willingness to participate in the survey, giving a 14% response rate for the initial invitation as **Figure 7.2** illustrates.

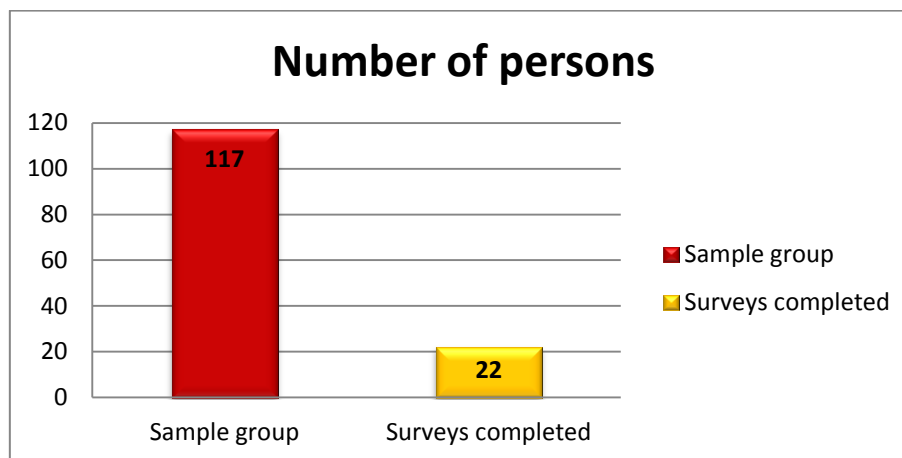


**FIGURE 7.2 SURVEY INVITATION RESPONSES**

The survey email was then sent to the twenty individuals and to fifty six individuals via the industry contact. The forty one participants of the CMP 2013 were given the details of the survey and were provided a link to the online survey in their Dropbox folder that was used for the course.

## Survey

The sample group that had access to the survey was one hundred and seventeen. Of this sample group only twenty two individuals completed the online survey which represents a 19% response rate. **Figure 7.3** shows the sample group and surveys completed.



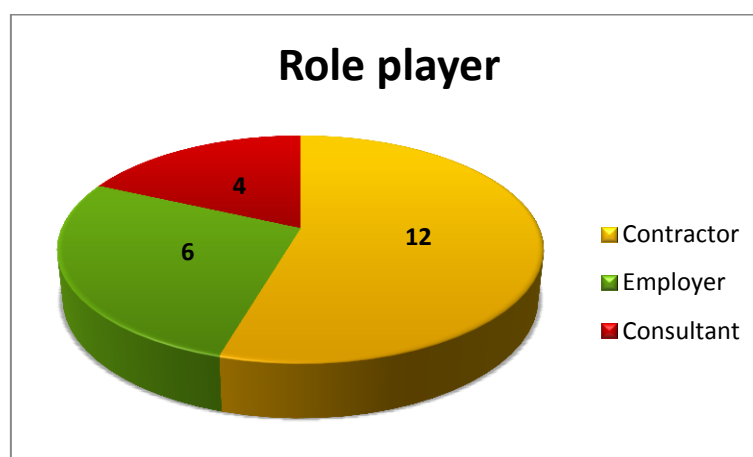
**FIGURE 7.3 SAMPLE GROUP VS SURVEYS COMPLETED**

As the survey was completed anonymously, there is no way to determine whether the respondents were current or former CMP participants or individuals from the industry.

### 7.7.1.2 RESPONDENT DETAILS

#### Overall

Twenty two respondents completed the survey. Twelve of the respondents were Contractors, six were Employers and only four surveys were completed by Consultants, as shown in **Figure 7.4**.



**FIGURE 7.4 RESPONDENT CLASSIFICATION**

## Survey

**Figure 7.5** shows the experience distribution of the respondents that completed the survey. There were no respondents with less than five years' experience. Only three respondents had between six and ten years of experience and nine had between eleven and twenty years of experience. Ten of the twenty two respondents had more than twenty years' experience.



FIGURE 7.5 RESPONDENTS YEARS OF EXPERIENCE

### Employers

**Figure 7.6** shows that three of the six Employers who responded were from the private sector, two were from the government (municipalities, district, provincial- or National government). Quasi-government institutions, such as Eskom, ACSA or Transnet were poorly represented with only a single respondent.

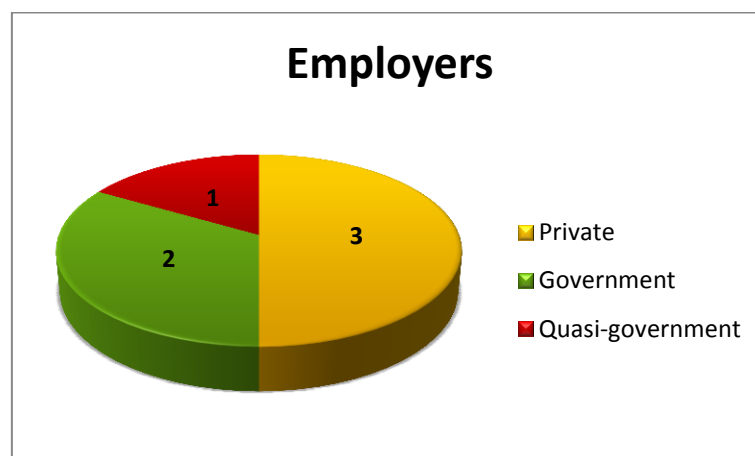


FIGURE 7.6 EMPLOYER CLASSIFICATION



## Survey

Employers who responded were well experienced with three having more than twenty years' experience and the other three between eleven and twenty years of experience as seen in **Figure 7.7**.



FIGURE 7.7 EMPLOYER EXPERIENCE

## Consultants

Four consultants completed the survey of which three were from a project management environment and one from a design environment. **Figure 7.8** shows the classification.

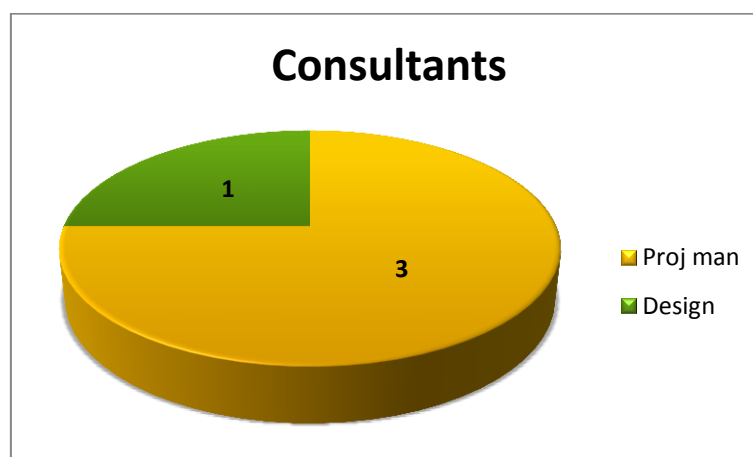


FIGURE 7.8 CONSULTANTS CLASSIFICATION

## Survey

As with Employers, Consultants also had an equal distribution between 20+ and 11-20 years of experience as **Figure 7.9** shows.



FIGURE 7.9 CONSULTANT EXPERIENCE

### Contractors

As **Figure 7.10** illustrates, five of the Contractors who responded were from the roads and earthworks industry, three were building contractors and the remaining four respondents were from civil engineering, specialist and mining environments.

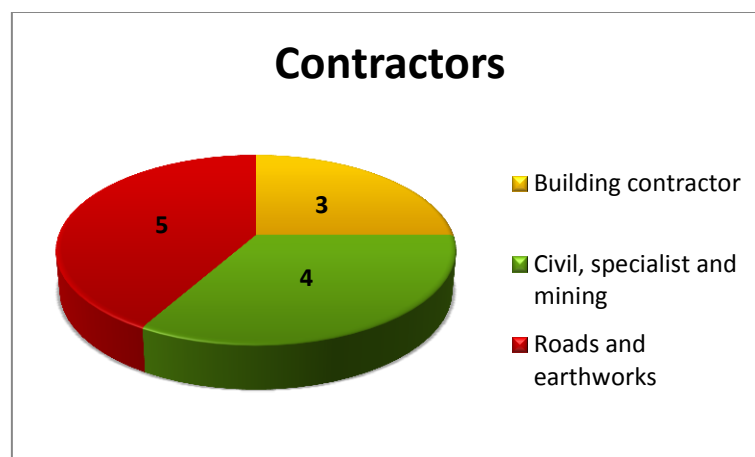


FIGURE 7.10 CONTRACTOR CLASSIFICATION

## Survey

None of the Contractors who responded had less than six years of experience. Three Contractors had between six and 10 years of experience and four of the respondents had between eleven and twenty years in the industry. Five of the Contractors who responded had more than twenty years' experience as seen in **Figure 7.11**.



FIGURE 7.11 CONTRACTOR EXPERIENCE

## CIDB rating

**Figure 7.12** shows that six of the Contractors who responded had a level 9 CIDB rating. Two Contractors were level 6 and two more were level 7. One Contractor had a level 3 rating and one did not disclose the CIDB rating.

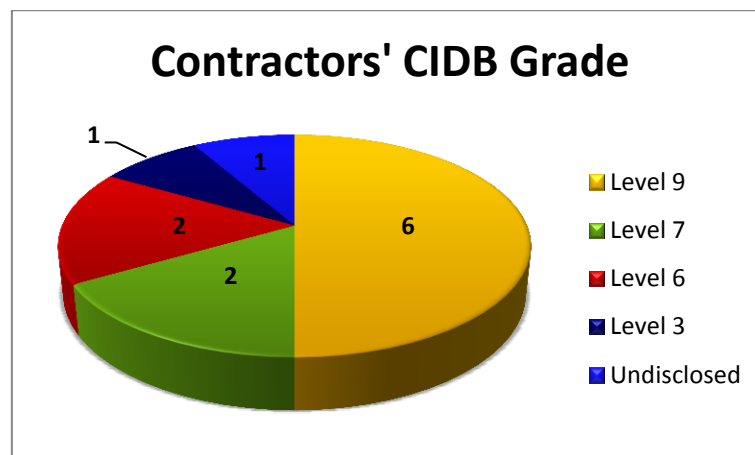


FIGURE 7.12 CONTRACTORS' CIDB GRADE

## Survey

### 7.7.2 PROCUREMENT DOCUMENT USE AND PREFERENCE

Respondents were asked to indicate how often projects they were involved with used the various procurement documents and secondly what procurement documents they preferred.

#### 7.7.2.1 PROCUREMENT DOCUMENT USE

The overall results of procurement document use in the construction industry is shown in **Figure 7.13**. According to the respondents the GCC and FIDIC procurement documents are used the most, followed by the NEC and JBCC documents. Other documents are used only 11% of the time.

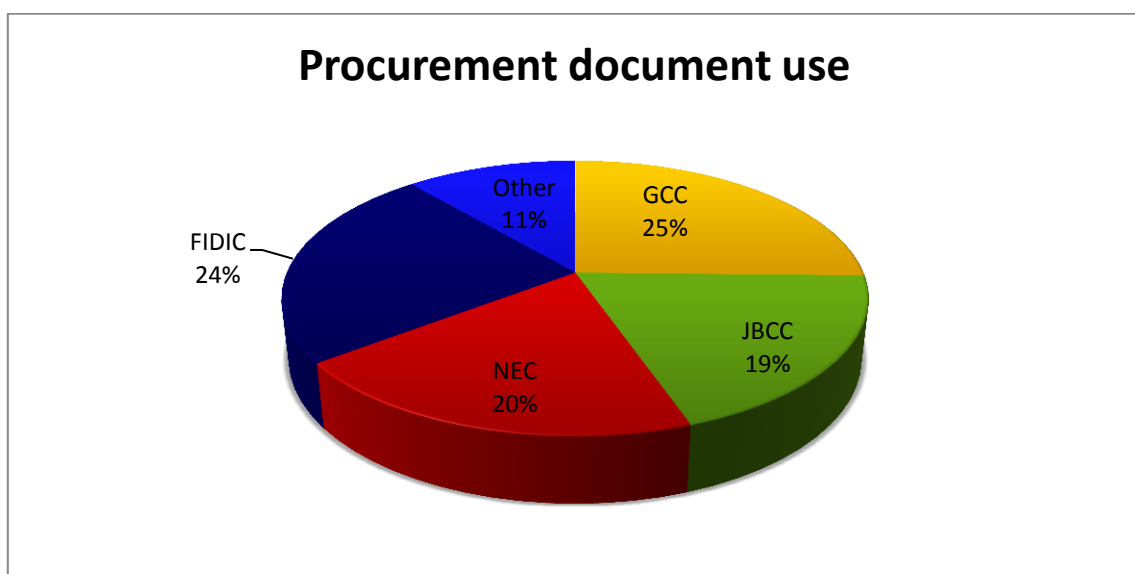


FIGURE 7.13 OVERALL PROCUREMENT DOCUMENT USE

## Survey

**Procurement document use according to Contractors**

Contractors responded that overall the use of the different procurement documents were distributed fairly evenly, as shown in **Figure 7.14**. The GCC was the most prominent with 27% followed by the FIDIC with 23%. Non-standard documents, listed as “Other” was said to be used the least. This shows that non-standard procurement documents are not a common occurrence, but is still used in some instances.

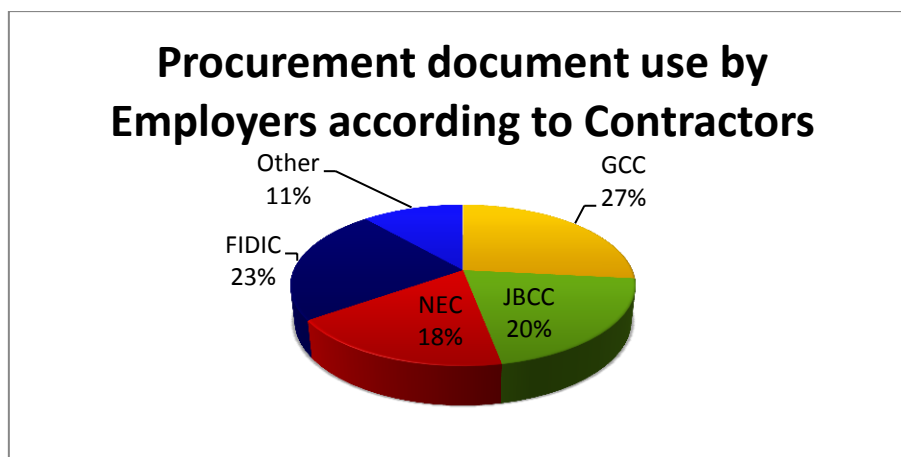


FIGURE 7.14 PROCUREMENT USE ACCORDING TO CONTRACTORS

**Procurement document use according to Employers**

The responses received from Employers, shown in **Figure 7.15**, showed a less equal distribution. Use of the JBCC was significantly low at 7%. Similarly to the Contractors' results, the FIDIC and GCC were the most commonly used, with the FIDIC having slightly higher share at 30% compared to the GCC's 28%. Non-standard document use was virtually the same as the Contractors' results and the NEC had a 22% share which is slightly higher.

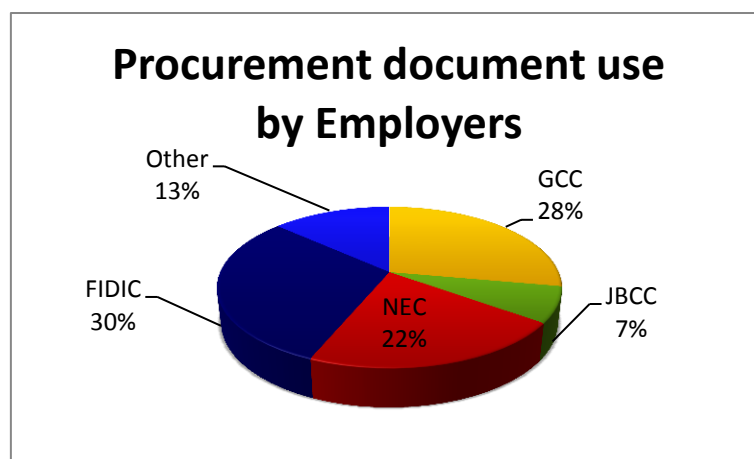
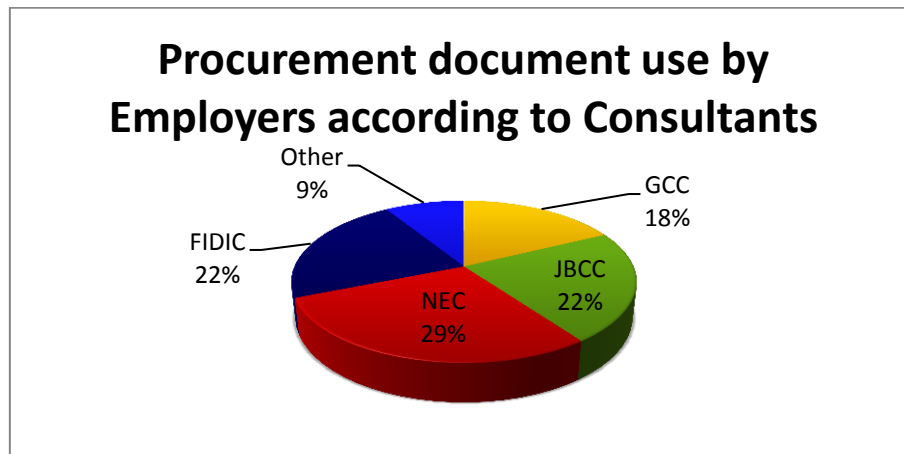


FIGURE 7.15 PROCUREMENT DOCUMENT USE ACCORDING TO EMPLOYERS

## Survey

**Procurement document use according to Consultants**

The responses from Consultants paint a different picture compared to that of Employers and Contractors, as shown in **Figure 7.16**. Consultants indicated that the NEC was the primary document used at 29% followed by the FIDIC and JBCC documents with 22% each. The GCC was the least used standard document at 18%. Other documents were used only 9% of the time and was also the least used as was the case for Contractors and Employers.



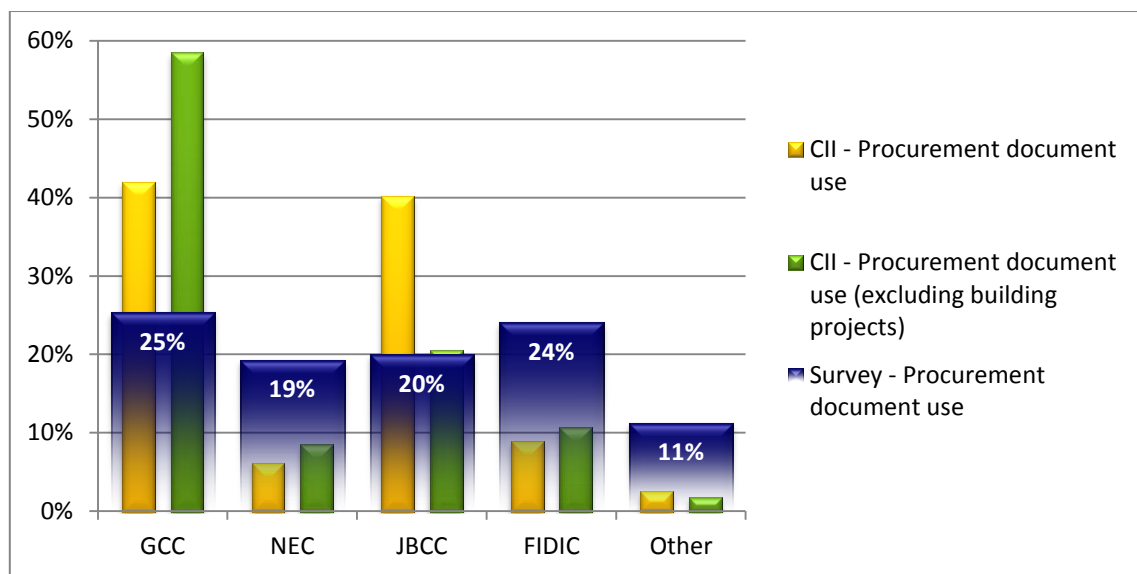
**FIGURE 7.16 PROCUREMENT DOCUMENT USE BY EMPLOYERS ACCORDING TO CONSULTANTS**

## Survey

## Conclusion

**Figure 7.17** shows the results of procurement document use according to the survey compared to the 2012 CII results from the CIDB. The comparison is made with the CII procurement document use for all projects and for projects excluding building projects.

The most notable differences are that the CII indicates a much higher use of the GCC than that of the survey results and that the survey showed a higher use of the NEC, FIDIC and Other documents. The use of the JBCC was slightly lower in the survey results than in the CII results.



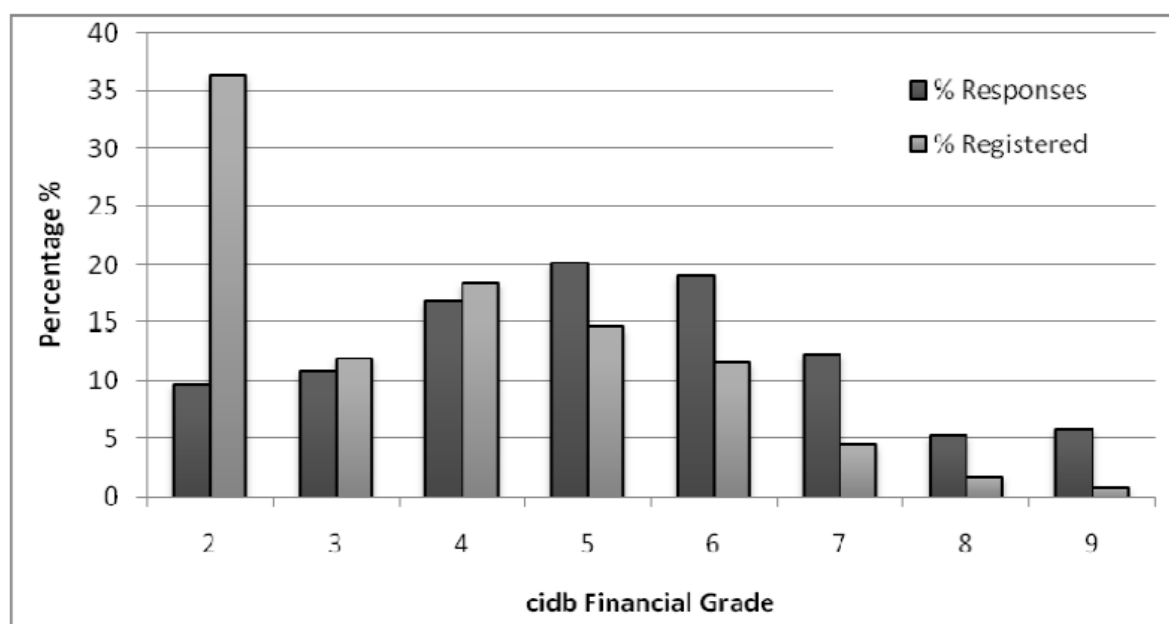
**FIGURE 7.17 PROCUREMENT DOCUMENT USE: CII COMPARED TO SURVEY RESULTS**

## Survey

A possible reason for the discrepancy is because the majority of the responses received from Contractors for the survey for this research were from Contractors with a *CIDB grade level 9*, whereas the responses for CIDB survey were from Contractors with a *CIDB grade of 4, 5 and 6* as shown in **Figure 7.18**. The results would thus be skewed due to the small sample group size.

Another reason may be because the data used for the CII results by the CIDB, as shown in **Figure 7.17**, is taken from surveys submitted by agents acting on Employers' behalf.

Contractors with a higher CIDB grade may potentially be involved with projects internationally where the GCC may not be available or practical. Both the NEC and FIDIC procurement documents are better suited for international projects than the GCC and some companies, such as Eskom, use the NEC as their standard procurement document. Many of these projects are very large that only Contractors with higher CIDB grades can perform. This explains the higher NEC and FIDIC score and the lower GCC score in the survey.



**FIGURE 7.18 CONTRACTOR SURVEY RESPONSE DISTRIBUTION PER CONTRACTOR FINANCIAL GRADE 2011 (CIDB, 2013)**

While there was a notable discrepancy between the survey results and the CII, the consequence would be negligible to the remainder of the survey. This is due to the fact that the questions of the remainder of the survey focussed on the content of the GCC 2010 and the GCC 2004, rather than the application of the procurement documents in the industry.



## Survey

### 7.7.2.2 PROCUREMENT DOCUMENT PREFERENCE

In addition to the use of procurement documents, respondents were asked to indicate their preference toward the individual documents. This information is used to see whether the preference differs from the actual use and to what extent the preferences differ between Contractors, Employers and Consultants.

Respondents were asked to rate their preference of the individual procurement documents as one of the following.

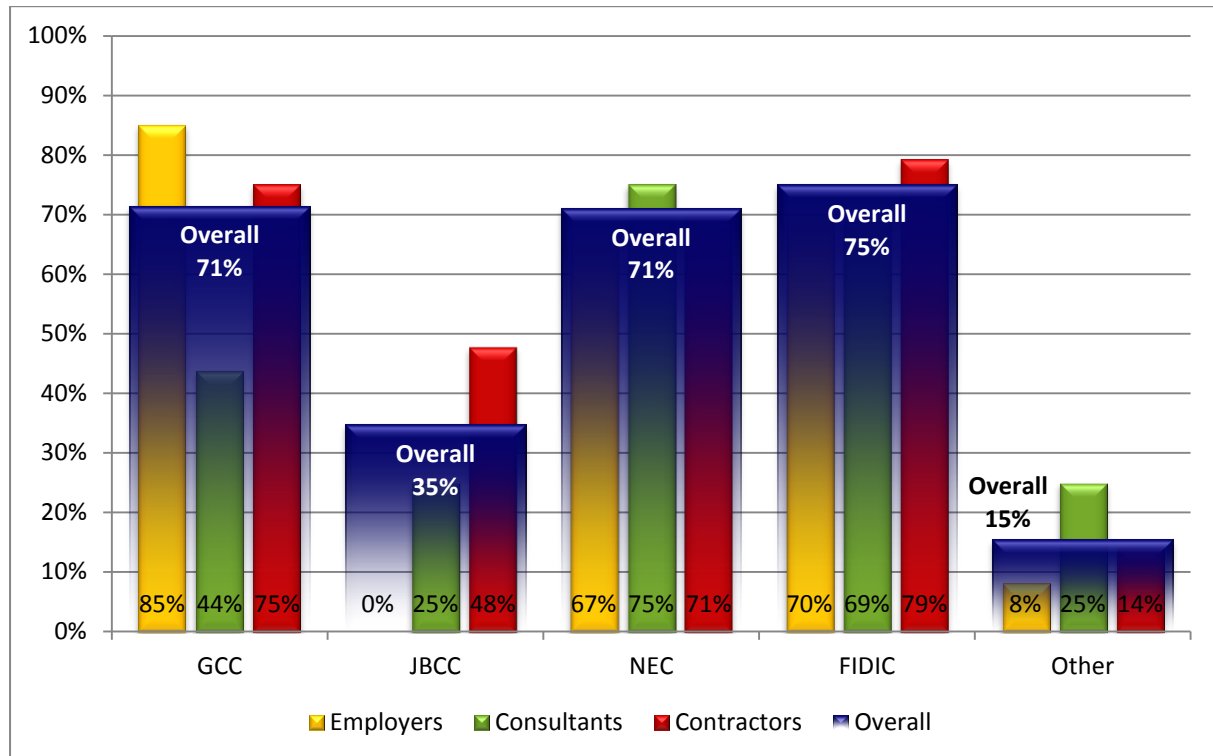
- Least preferred (0%)
- Less preferred (25%)
- Neutral (50%)
- Slightly preferred (75%)
- Strongly preferred (100%)

The percentage in brackets shows the score given to each rating for the analysis of the data.

The procurement document preference rating of all the respondents is shown in **Figure 7.19** and indicates that FIDIC is the most preferred procurement document, followed closely by the GCC and NEC documents. The JBCC procurement document only scored a 35% rating and Other documents are the least preferred with a rating of 15%.

## Survey

The ratings of the Contractors, Employers and Consultants are shown in the background of **Figure 7.20**. The results are briefly discussed below, but as the number of responses were low, the results may not necessarily be an accurate representation of the perception of Contractors, Employers and Consultants from the industry as a whole.



**FIGURE 7.19 PROCUREMENT DOCUMENT PREFERENCE RATING**

### *Contractors' procurement document preference*

The FIDIC, GCC and NEC all had similar preference ratings from Contractors when compared to one another. The JBCC was less preferred and the use of Other procurement was least favoured. This may be because CMP participants are mainly civil contractors.

This shows that Contractors have a positive inclination toward standardised contracts, especially documents that are aimed at being used for different project and contracting types.

## Survey

*Employers' procurement document preference*

Government employers showed the strongest preference toward the GCC followed by the NEC. The FIDIC was preferred less than the GCC and NEC, but still favourable. The JBCC and Other documents were not favoured at all with 0% for both.

In contrast to Government Employers, the response from Private Employers indicated that the FIDIC document was the most preferred followed by the GCC. The JBCC was not favoured at all, but Other documents did receive minor preference by some of the respondents.

*Consultants' procurement document preference*

The NEC was found to be the most favourable with Consultants, followed closely by FIDIC. The GCC did have some preference, but much less in comparison to Employers and Contractors. Other documents were slightly more preferred than the JBCC.

The preference distribution of all respondents is shown in **Figure 7.20**. The FIDIC, GCC and NEC procurement documents make up the largest section of preferred documents.

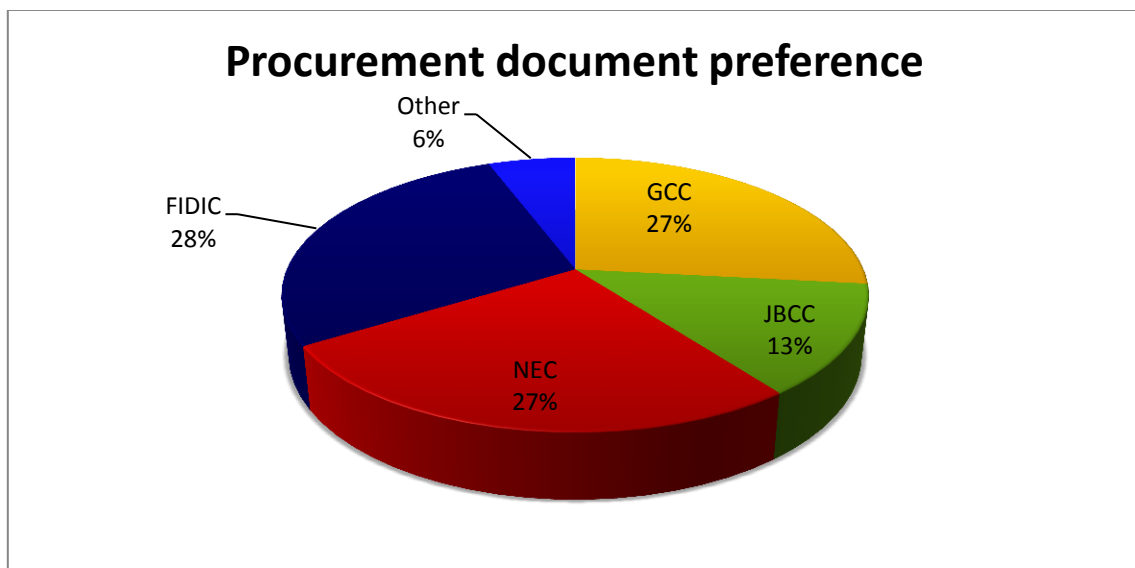
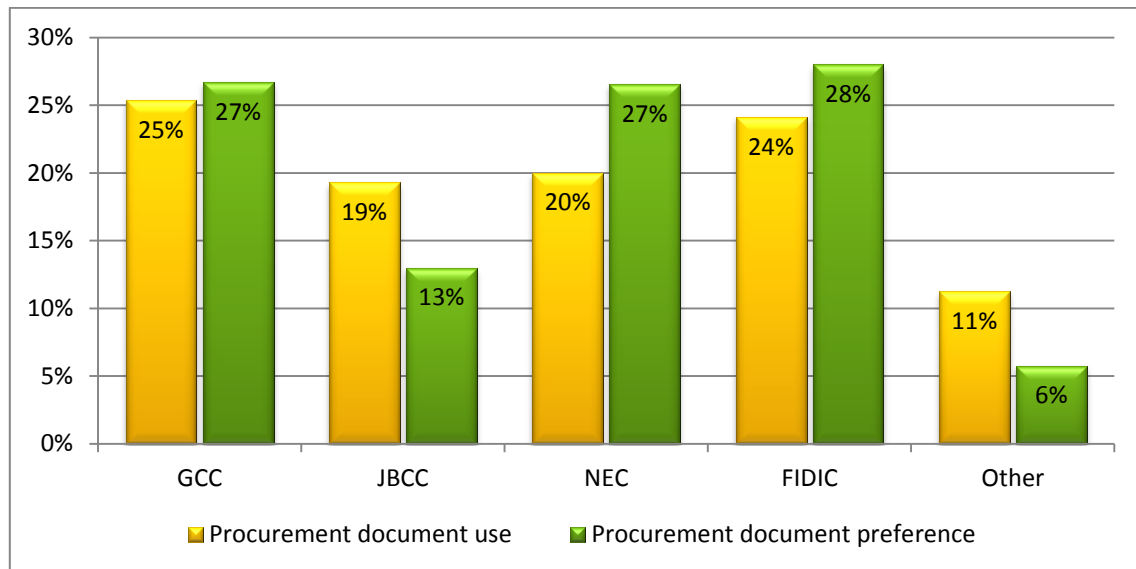


FIGURE 7.20 PROCUREMENT DOCUMENT PREFERENCE

## Survey

When the procurement document preference distribution is compared to the actual use distribution, **Figure 7.21** shows that the GCC use and preference correlate well. The NEC procurement documents are preferred more than it is currently used, as is the case with the FIDIC documents. The JBCC and Other documents are preferred significantly less than the other procurement documents, but used more than they are preferred.



**FIGURE 7.21 PROCUREMENT DOCUMENT USE VS PREFERENCE**

The differences between procurement document preference and procurement document use are not substantial, thus it is apparent that the document that the respondents prefer is generally the document that is used. A possible reason for this phenomenon is that industry participants tend not to prefer procurement documents that they are unfamiliar with.

In light of this fact, it stands to reason that there may potentially be a procurement document that is better suited for a specific project. However, the better suited document may not be used because the Employer or the Consultant responsible for drafting the contract agreement does not have sufficient experience working with all of the available alternatives.

Improved training and education of Employers and Consultants (and Contractors) who draft contract documents may reduce the contractual risks related to projects because of unsuitable procurement documents.

In addition to training and education, more focus on procurement strategy by persons with wider contracts exposure may have the desired effect.

## Survey

## 7.7.3 GCC 2010 vs. GCC 2004

This section displays and discusses the results from **three questions comparing the GCC 2010 to the GCC 2004**. Given the number of responses, the secondary breakdown of the results from **Employers, Consultants and Contractors** may not be an accurate representation of the current industry situation. Further research on the individual perceptions of Employers, Consultants and Contractors of similar aspects may provide valuable insights to areas where perceptions are significantly different.

The **first question** related to respondents giving a rating on the suitability of the GCC 2010 and the GCC 2004 for different **project types**. The four projects types for which the suitability was asked are:

- Roads and earthworks projects
- Building projects
- Specialist projects
- Other projects

The **second question** was also a suitability rating, but on **contract types**. The suitability of the GCC 2010 and the GCC 2004 was asked of three contract types:

- Unit price
- Lump sum
- Cost plus

The **third question** was how well the respondents rated the GCC 2010 and the GCC 2004 perform in terms of **the three pillars of the modern contract** as described in **chapter 5**.

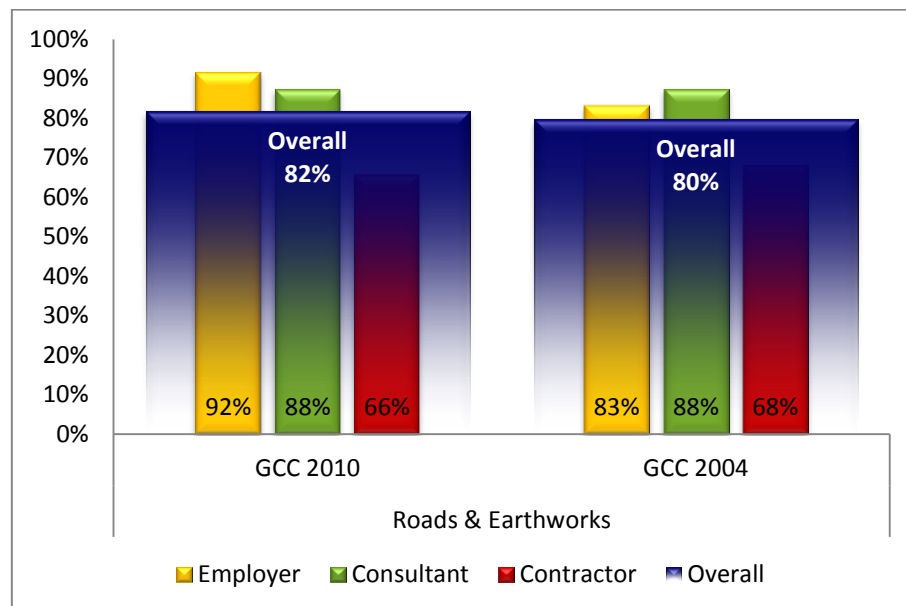
## Survey

## 7.7.3.1 PROJECT TYPES

In this section a comparison is made regarding the analysed responses about the suitability of the GCC 2010 and GCC 2004 for specific project types. Four project types were identified: Roads and Earthworks, Building, Specialist and Other (non-civil engineering field) projects.

***Roads and Earthworks***

The GCC 2010 had a slightly better average rating than the GCC 2004, despite Contractors rating the GCC 2010 3% lower than the GCC 2004. The similar average is because of an increase of nearly 10% in the Employer rating and the fact that there was no change in the Consultants rating. **Figure 7.22** shows the comparative ratings.



**FIGURE 7.22 ROADS AND EARTHWORKS PROJECTS**

***Building projects***

The suitability was roughly 50% for both the GCC 2010 and GCC 2004. Contractors rated the GCC 2010 slightly lower than the GCC 2004, while Employers and Consultants rated both equally, as seen in **Figure 7.23**.

## Survey

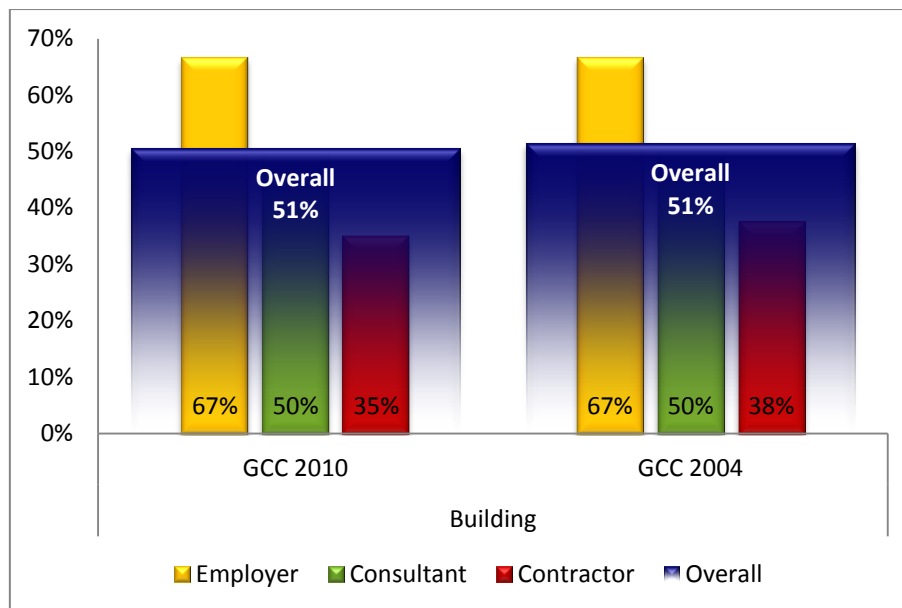


FIGURE 7.23 BUILDING PROJECTS

### *Specialist projects*

**Figure 7.24** shows that both the GCC 2010 and GCC 2004 received poor ratings for suitability for specialist projects. In this case the GCC 2010 was rated higher than the GCC 2004. Consultants rated both versions equally, but Employers rated the GCC 2010 higher. Contractors rated the GCC 2004 slightly higher than the GCC 2010.

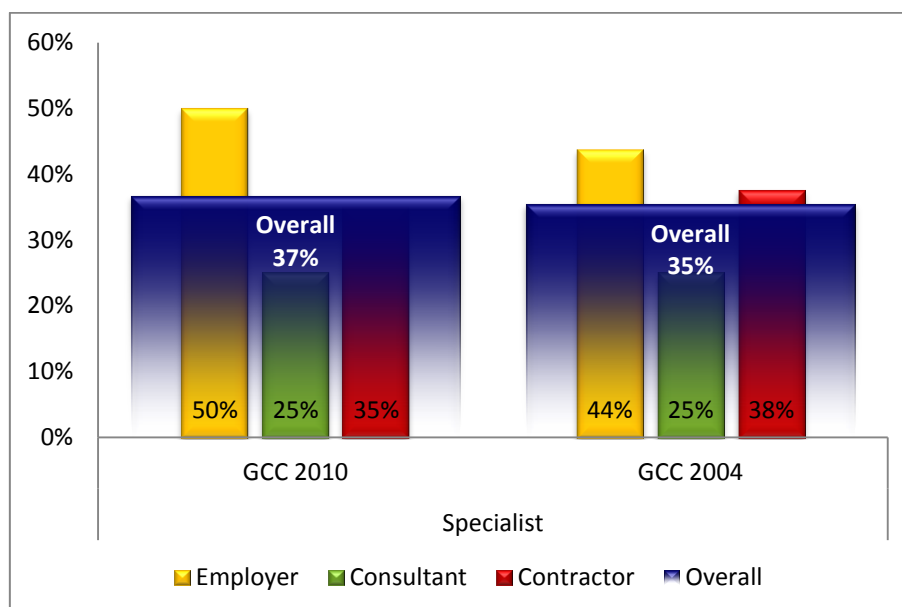
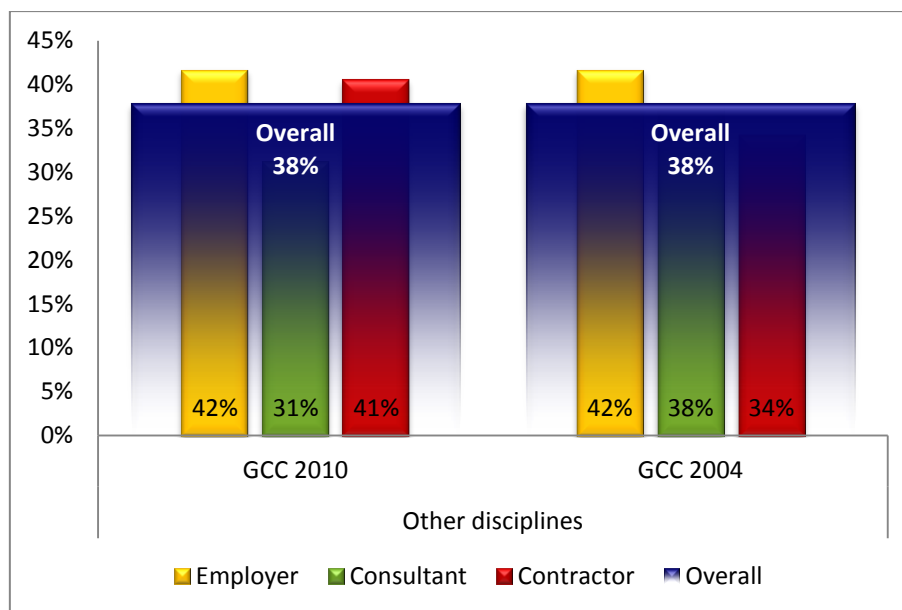


FIGURE 7.24 SPECIALIST PROJECTS

## Survey

***Other disciplines***

As was the case with the specialist projects **Figure 7.25** shows that the suitability for projects of other disciplines was deemed poor, both versions receiving a grade under 40%. Contractors and Consultants had contrasting comparative ratings with Contractors rating the GCC 2010 significantly higher than the GCC 2004 and the Consultants rating the other way around. Employers rated both versions equally.

**FIGURE 7.25 OTHER PROJECTS**



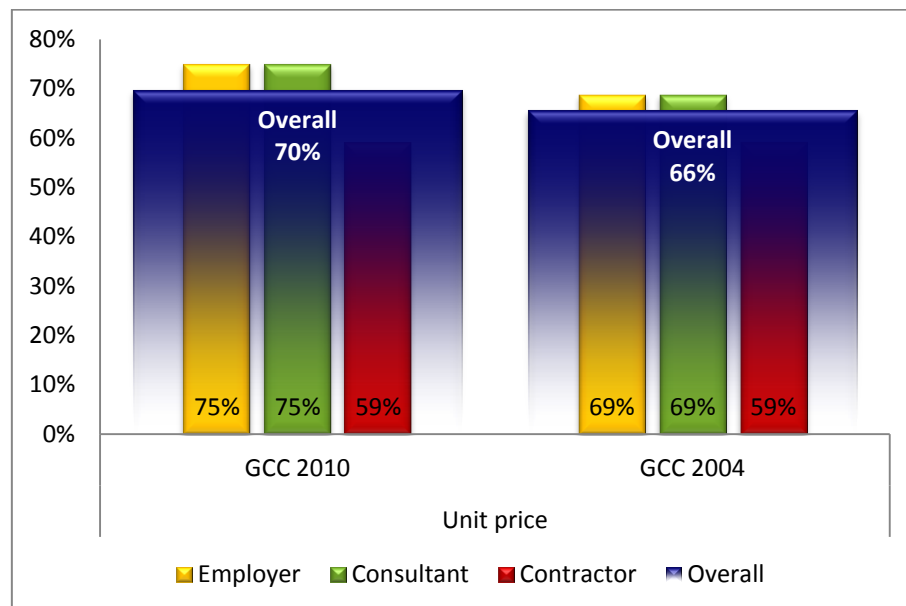
## Survey

## 7.7.3.2 PRICING STRATEGIES

In this section a comparison is made regarding the analysed responses about the suitability of the GCC 2010 and GCC 2004 for specific pricing strategies types. Three contract pricing strategies were selected: **unit price**, **lump sum** and **cost plus**.

***Unit price***

**Unit price** contracts received the highest average rating of the three contracts at 70% for the GCC 2010 and 66% for the GCC 2004, as seen in **Figure 7.26**. Contractors rated both versions equally at 59% and Employers and Consultants gave identical ratings to the GCC 2010 and GCC 2004 at 75% and 69% respectively.



**FIGURE 7.26 UNIT PRICE CONTRACTS**

***Lump sum***

Consultants gave the lowest rating for suitability for **lump sum** contracts at 33% for both versions. Contractors gave the GCC 2010 a lower rating of 43% than the GCC 2004 with a rating of 48%. A much higher rating was given by Employers at 67% and 58% for the GCC 2010 and GCC 2004 respectively. This brought the average ratings to 48% for the GCC 2010 and 46% for the GCC 2004. **Figure 7.27** shows the comparative ratings.

## Survey

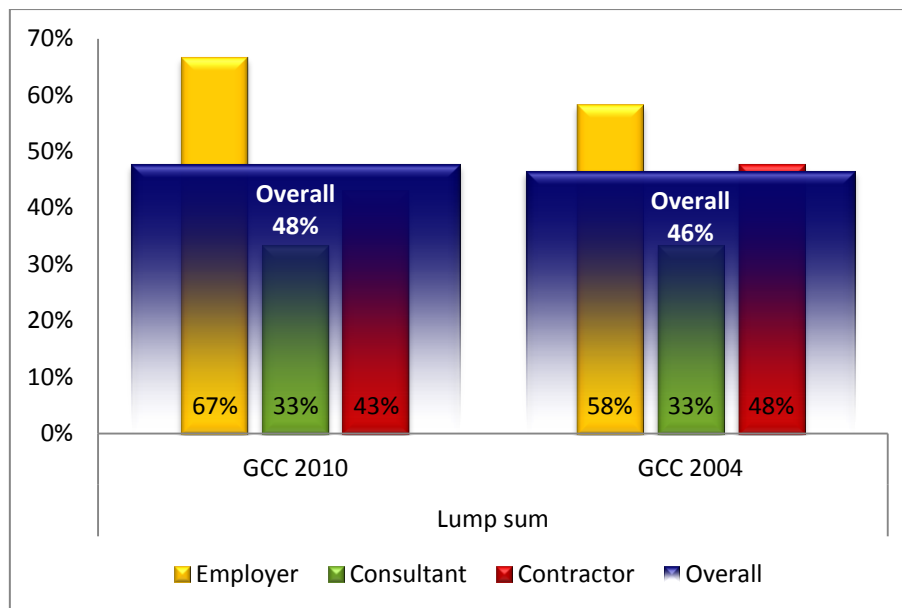


FIGURE 7.27 LUMP SUM CONTRACTS

***Cost plus***

As shown in **Figure 7.28**, **cost plus** received the lowest suitability rating from respondents, with the GCC 2010 receiving an average rating of 45% and the GCC 2004 a rating of 44%. Once again Employers gave both relatively high ratings in comparison to Contractors and Consultants. The GCC 2010 was given rated 63%, 39% and 33% by Employers, Contractors and Consultants where the GCC 2004 received 56%, 41% and 33%, respectively.

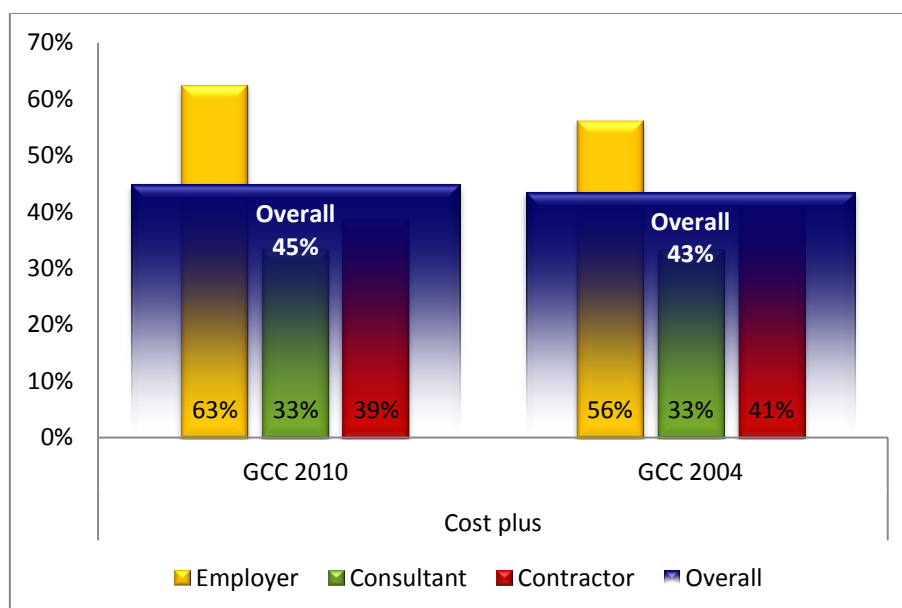


FIGURE 7.28 COST PLUS CONTRACTS

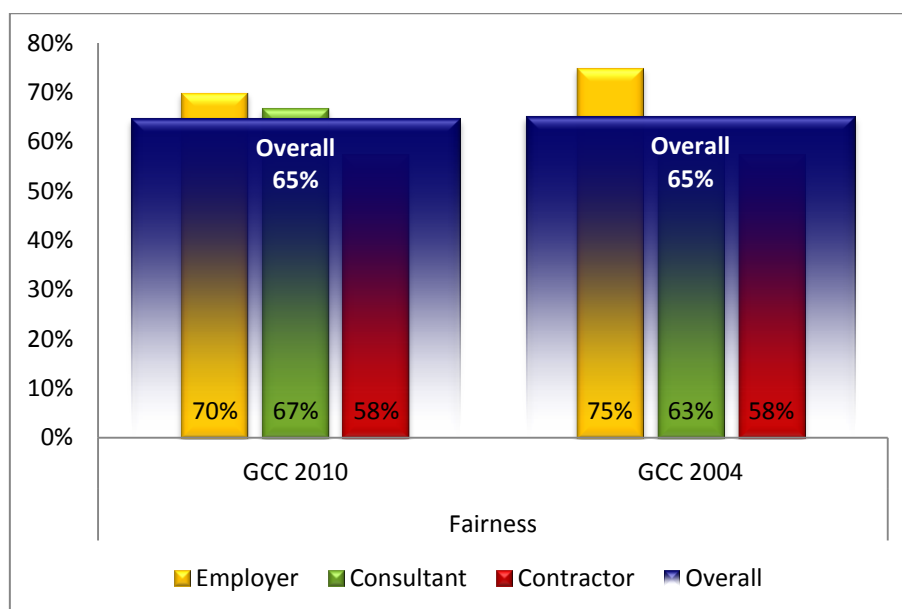
## Survey

## 7.7.3.3 THREE PILLARS OF THE MODERN CONTRACT

In this section a comparison is made regarding the analysed responses about how effective the GCC 2010 and GCC 2004 are with regards to the three pillars of the modern contract. The three pillars are fairness, clarity of roles and payment operating mechanisms.

***Fairness***

From the analysis it appears as though the GCC 2010 and GCC 2004 are equal in terms of fairness with an average rating of 65% for both, as shown in **Figure 7.29**. Contractors gave both versions a score of 58%. Consultants rated the GCC 2010 higher than the GCC 2004 at 67% and 63% while Employers scored 70% and 75%, contrary to the Consultants.



**FIGURE 7.29 FAIRNESS RATING**

***Clarity of roles***

**Figure 7.30** shows that the GCC 2010 scored considerably higher in clarity of roles than the GCC 2004. All of the role players gave the GCC 2010 a higher score. Employers scored 75% to 69% and Contractors scored 60% to 50%. Consultants had the biggest difference giving the GCC 2010 a rating of 67% compared to 56% of the GCC 2004, a difference of 11%. The averages of the responses gave the GCC 2010 a 7% gain on the GCC 2004, the ratings being 67% and 60% respectively.

## Survey

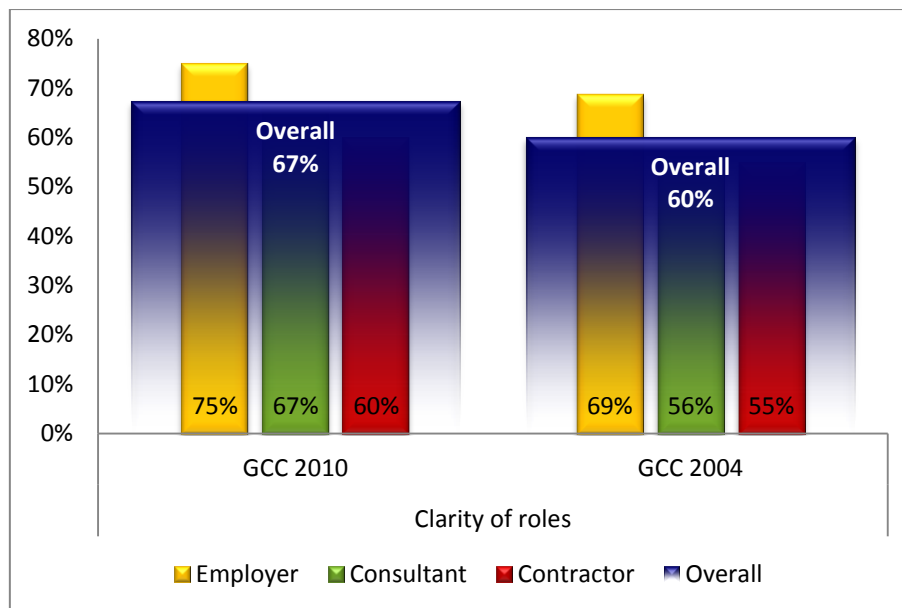


FIGURE 7.30 CLARITY OF ROLES RATING

***Payment operating mechanisms***

Payment operating mechanisms followed a similar trend than that of clarity of roles in that the GCC 2010 scored an average of 63% compared to the 58% of the GCC 2004. All role players gave the GCC 2010 a higher rating. Contractors rated 53% and 50%, Employers 70% and 69% and Consultants 67% and 56%. Once again Consultants gave the latest version a substantially higher rating. **Figure 7.31** shows the abovementioned results.

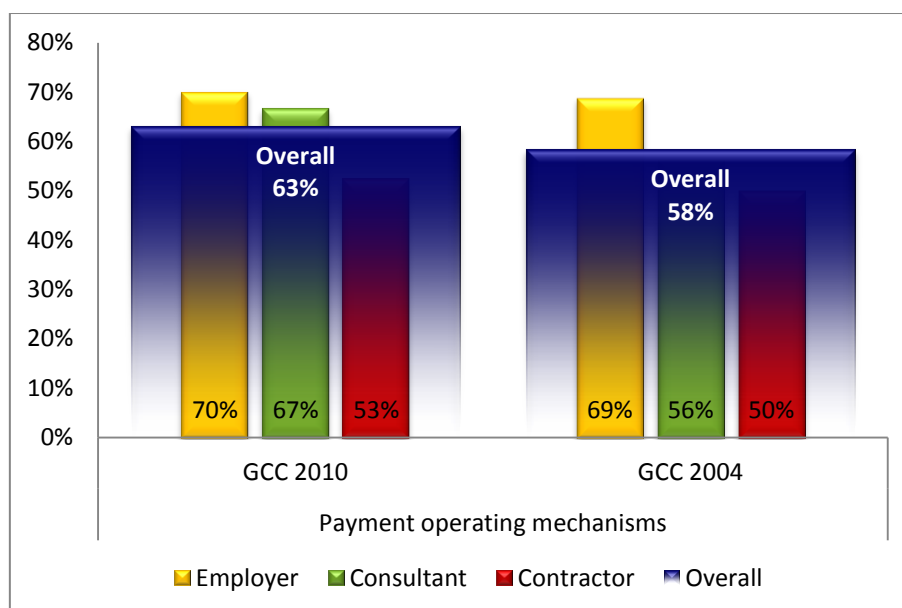


FIGURE 7.31 PAYMENT OPERATING MECHANISMS RATING

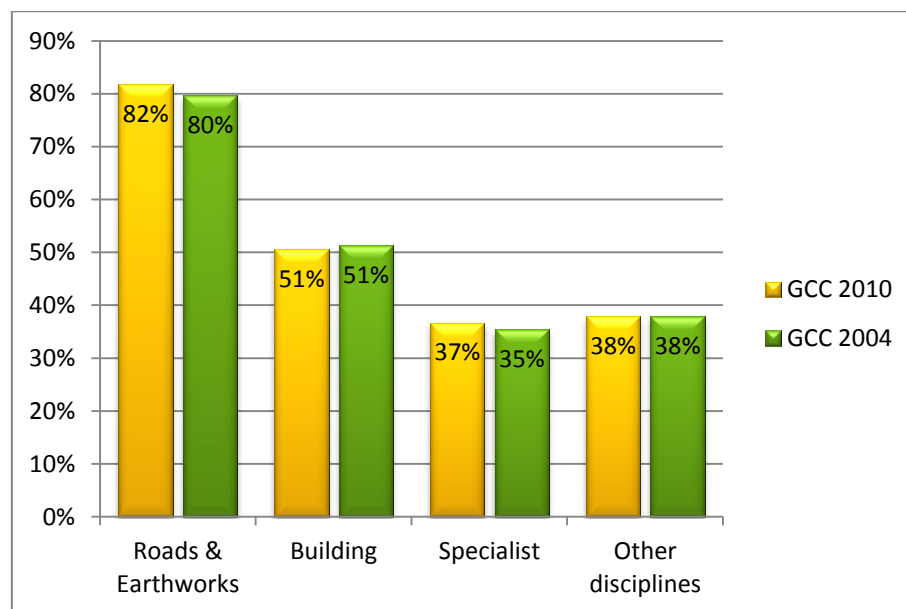
## Survey

## 7.7.3.4 SECTION SYNTHESIS

This section discusses the overall findings of the GCC 2010 comparison to the GCC 2004.

**Project types**

**Figure 7.32** shows that respondents found there was little improvement in GCC 2010 in terms of the suitability when compared to the GCC 2004. Both documents had a very high suitability rating for roads and earthworks projects and was fairly suitable for building projects. Despite the foreword of the GCC 2010, claiming the document to be suitable for projects of other disciplines, the results showed that there was no marked improvement in this regard from the perceptions of the respondents, neither in the suitability for specialist projects.



**FIGURE 7.32 GCC 2010 VS GCC 2004: PROJECT TYPES**

## Survey

### Pricing strategies

Overall there was a marginal improvement in pricing strategies. The most significant being on the suitability for unit price contracts, as shown in **Figure 7.33**. The GCC 2010 makes provision for all the strategies, however, the cost plus and lump sum strategies may not be suitable to be used with the document.

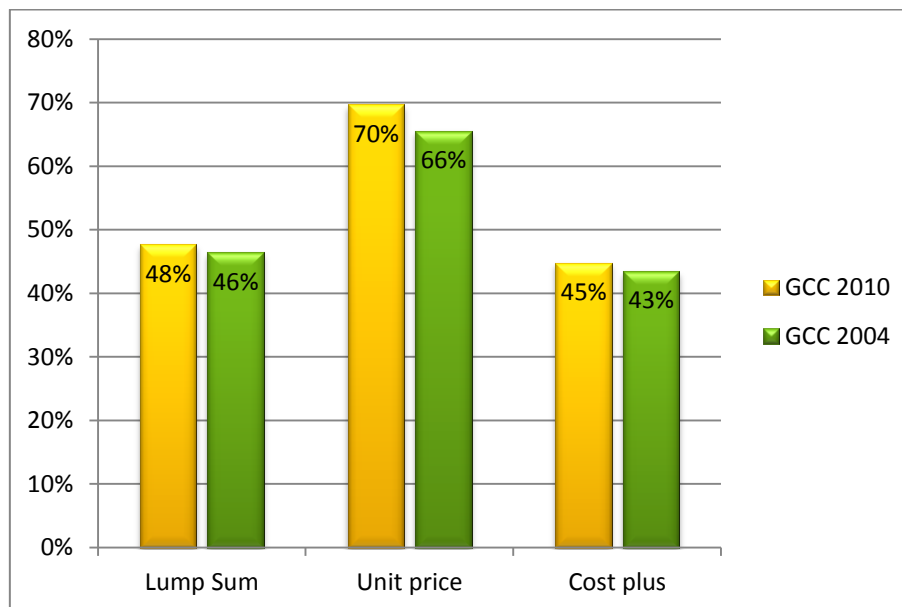


FIGURE 7.33 GCC 2010 VS GCC 2004: PRICING STRATEGIES

### Three pillars

A significant increase in both clarity of roles and payment operating mechanisms ratings is shown in **Figure 7.34**. The fairness of both documents remained equal at 65%.

## Survey

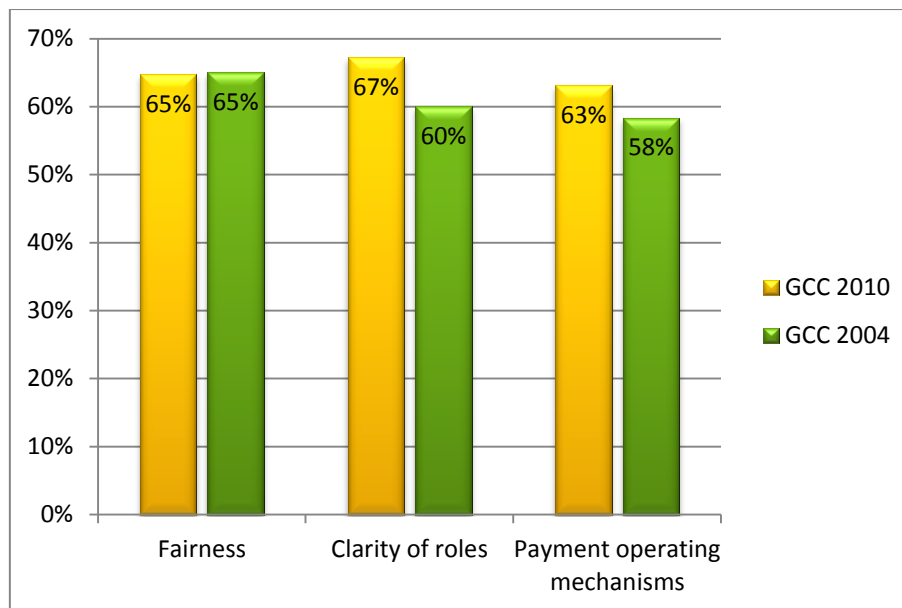


FIGURE 7.34 GCC 2010 VS GCC 2004: THREE PILLARS

## 7.7.4 GCC 2010

This section relates to question sets that focussed on the GCC 2010 only. The first set of questions related to how often respondents found the standard clauses pertaining to the following aspects, are altered by Employers when setting up contract documents.

- Payments
- Latent defects
- Scope changes
- Quality
- Insurance and guarantees
- Design responsibilities
- Claims and disputes
- Risk allocation
- Delays

The second and third question sets asked respondents to rate the bias of the abovementioned aspects.

The second question set required respondents to indicate whether the ***clauses without alterations*** were **neutral**, **in favour of the Employer** or **in favour of the Contractor**.

## Survey

Respondents had to do indicate the bias of ***clauses with alterations*** for the same aspects as **neutral, in favour of the Employer** or **in favour of the Contractor** for the third question set.

The results from the abovementioned questions are then integrated and discussed in **section 7.7.4.4.**

### 7.7.4.1 ALTERATIONS TO CLAUSES

The first question asked respondents to rate how often the abovementioned aspects are altered in procurement documents. Respondents had to select one of the following options.

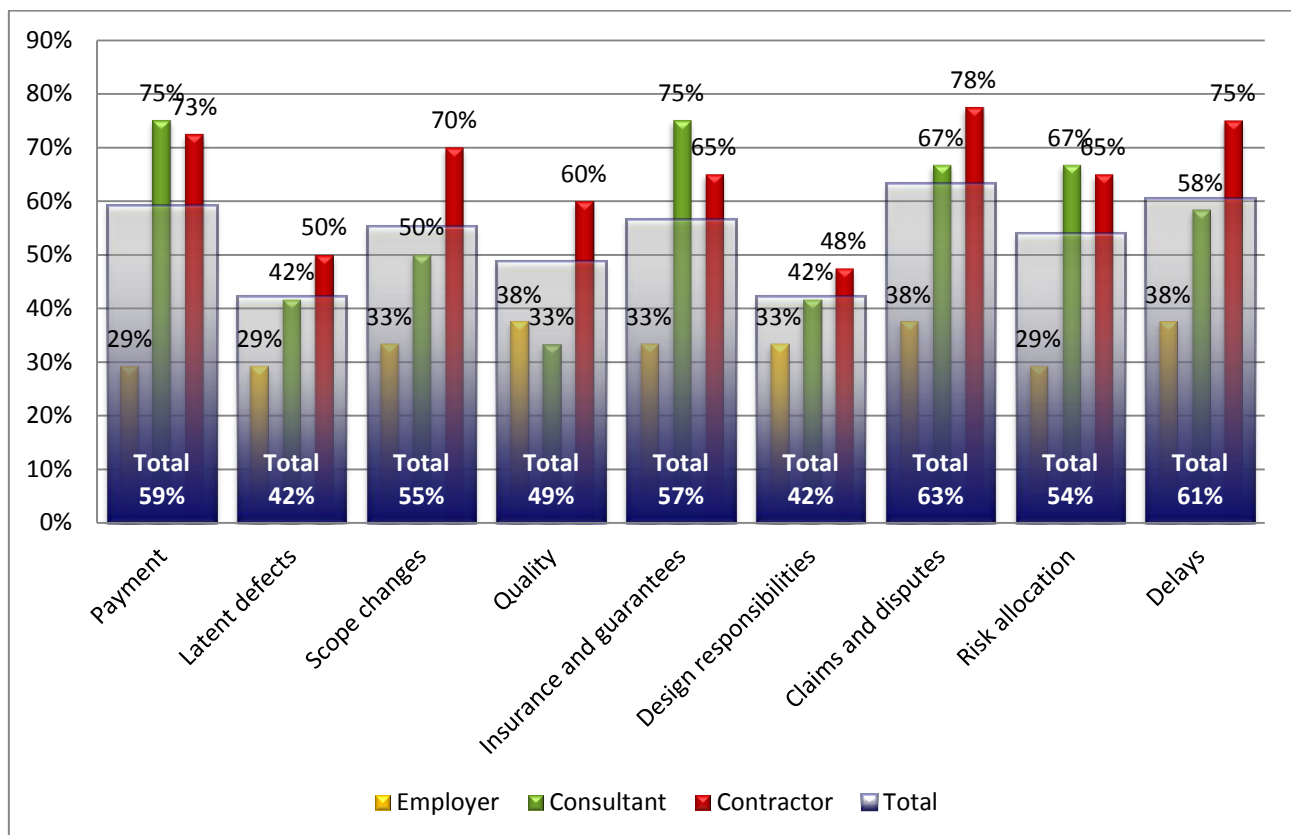
- Never (0%)
- Rarely (25%)
- Sometimes (50%)
- Often (75%)
- Always (100%)

The percentage values in brackets were used to convert the results into data that can be used for mathematical calculations.



## Survey

**Figure 7.35** shows the results of how often standard clauses that affect the subjects indicated on the horizontal axis are altered. The figure shows the **total** for each subject derived from all respondents, as well as the analysed results of the individual role players.



**FIGURE 7.35 ALTERATIONS TO CLAUSES IN THE GCC 2010**

The results show respondents found clauses relating to claims and disputes to be altered most often, followed closely by clauses on delays. Insurance and guarantee clauses, as well as payment clauses were also rated among the subjects that were altered often.

As only responses for specific areas were asked, combining the results or getting an average would not provide any meaningful information.

## Survey

**Table 7.7** displays, in order of frequency (from highest to lowest), that the standard clauses relating to the abovementioned aspects are altered.

**TABLE 7.7 ALTERATIONS TO CLAUSES IN ORDER OF FREQUENCY**

Order of frequency		Category
1	Claims and disputes	Sometimes-Often
2	Delays	Sometimes-Often
3	Payments	Sometimes
4	Insurance and guarantees	Sometimes
5	Risk allocation	Sometimes
6	Scope changes	Sometimes
7	Quality	Sometimes
8	Design responsibility	Rarely-Sometimes
9	Latent defects	Rarely-Sometimes

An area of further possible study is the investigation of what clauses of the subjects are altered and in what way. If certain clauses are altered similarly on a continuous basis, then these clauses may be identified for possible revision.

#### 7.7.4.2 BIAS **WITHOUT** ALTERATIONS

Respondents were asked to indicate whether the bias of the GCC 2010 clause pertaining the abovementioned subjects was neutral, in favour of the Employer or in favour of the Contractor. Four respondents selected the “N/A” option when answering the questions, that left 18 responses per question.

## Survey

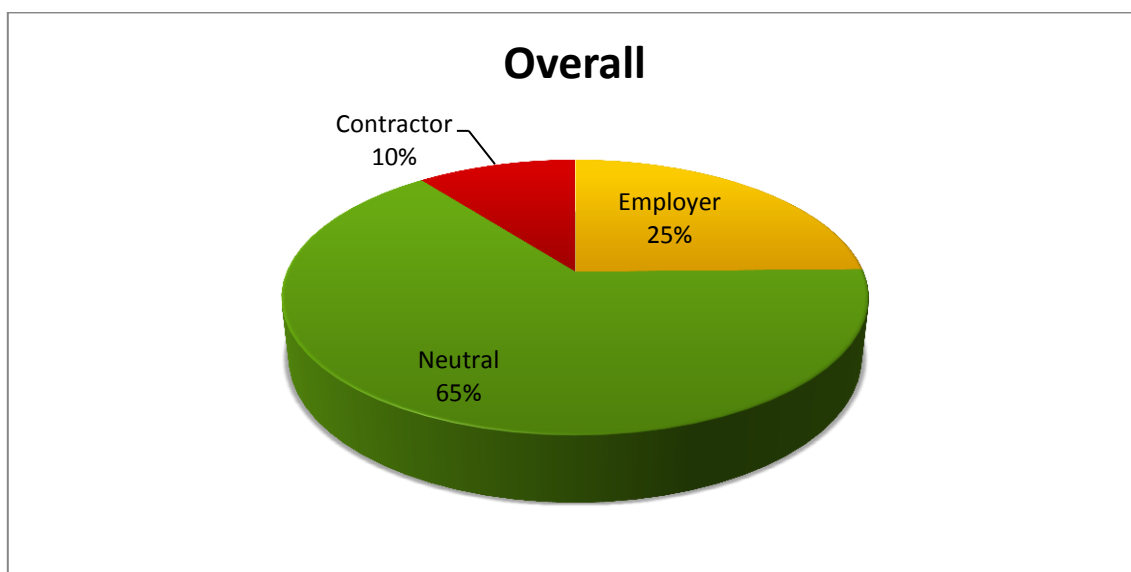
To relate the bias perception results of the survey with the content analysis, the results of the different aspects were grouped together under the following headings:

- **Overall** (162 responses)
  - **Time and related matters** (36 responses)
    - *Latent defects* (18 responses)
    - *Delays* (18 responses)
  - **Payment and related matters** (54 responses)
    - *Payments* (18 responses)
    - *Scope changes* (18 responses)
    - *Insurance and guarantees* (18 responses)
  - **Quality and related matters** (18 responses)
    - *Quality* (18 responses)
  - **Risk and related matters** (36 responses)
    - *Risk allocation* (18 responses)
    - *Design responsibility* (18 responses)
  - **Claims and disputes** (18 responses)
    - *Claims and disputes* (18 responses)

**Overall bias**

The **overall bias of the GCC 2010** was calculated by combining the responses of all the different aspects to provide an overview of the document as a whole.

Out of the 162 answers received, 105 were neutral, 40 in favour of the Employer and only 17 in favour of the Contractor. This provides a bias perception of *65% neutral*, *25% in favour of the Employer* and *10% in favour of the Contractor*, as shown in **Figure 7.36**.



**FIGURE 7.36 OVERALL BIAS OF GCC 2010 WITHOUT ALTERATIONS**

## Survey

***Time and related matters***

**Time and related matters** was made up of the combined responses of latent defects and delays. Results showed that respondents scored time and related matters as **64% neutral**, **22% in favour of the Employer** and **14% in favour of the Contractor**, as shown in **Figure 7.37**. According to these statistics, the GCC 2010 has an 8% bias toward the Employer concerning Time and related matters.

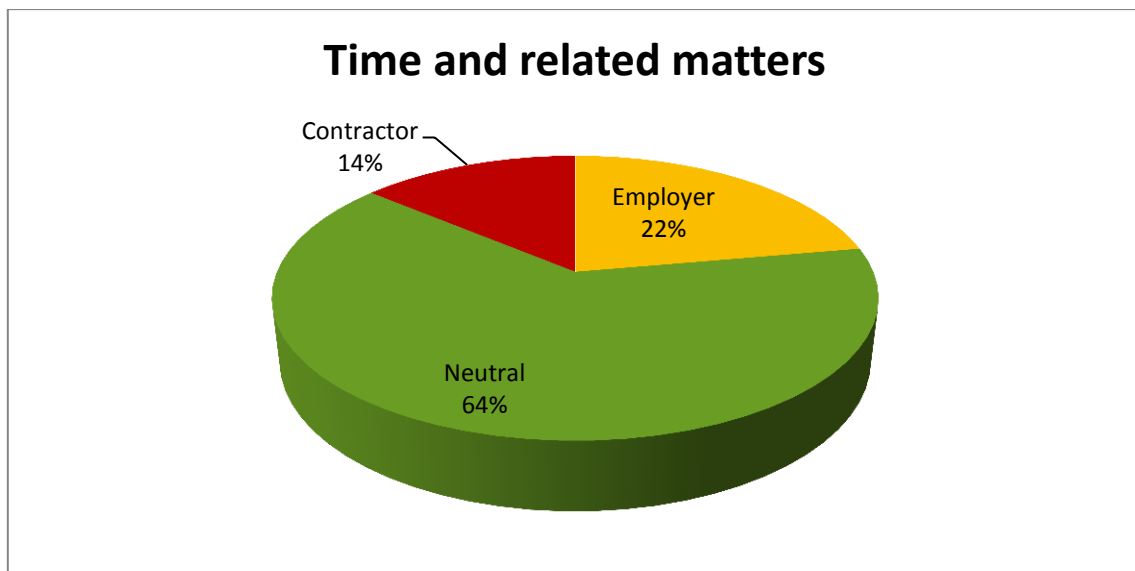


FIGURE 7.37 BIAS OF TIME AND RELATED MATTERS

The latent defects clauses were received more neutral responses than the delay clauses. Delays also favoured Contractors more than latent defects clauses. The number of responses for each option for latent defects and delays is shown in **Figure 7.38** and **Figure 7.39** respectively.

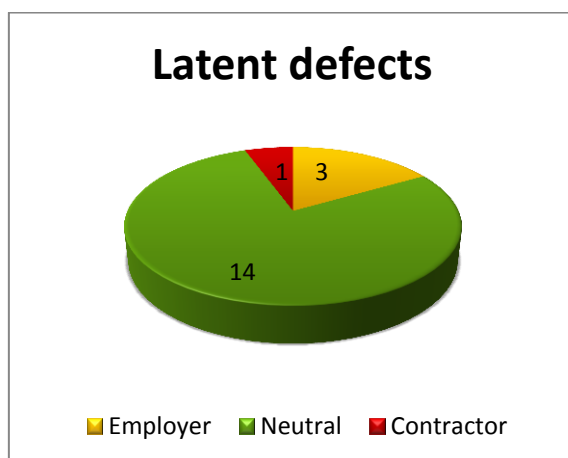


FIGURE 7.38 LATENT DEFECTS BIAS

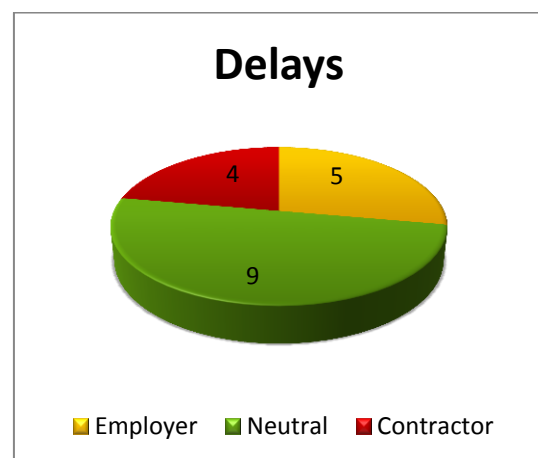


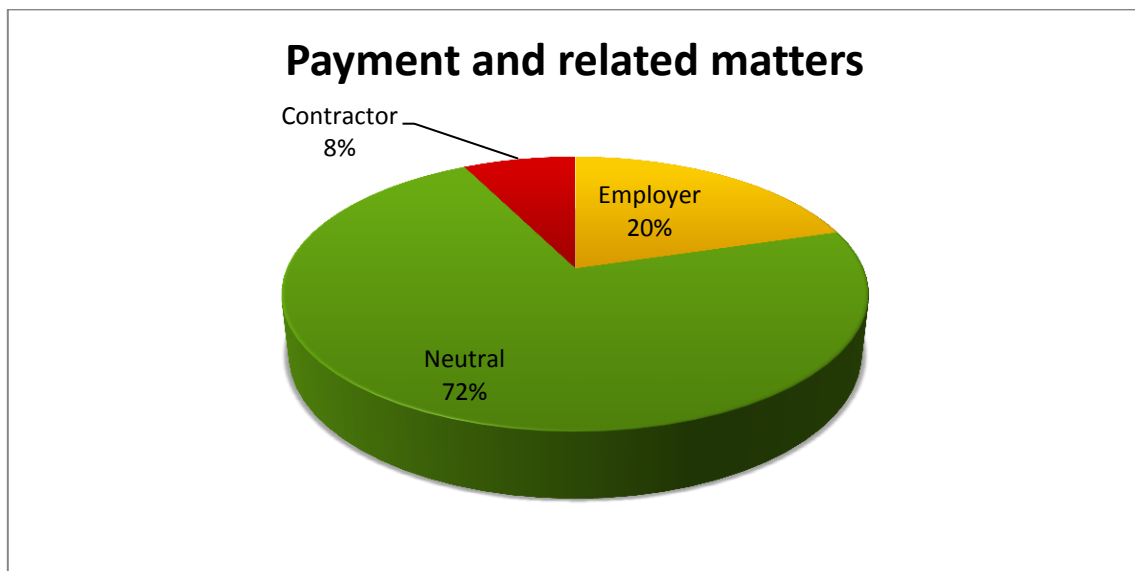
FIGURE 7.39 DELAYS BIAS

## Survey

***Payments and related matters***

As can be seen in **Figure 7.40** there was a strong neutral response for **payments and related matters**. The number of respondents that indicated that the bias **in** favour of Contractors was only 8%, whilst 20% rated in favour of the Employer and 72% scored neutral.

The payments and related matters data is made up of the responses from payments, scope changes and insurance and guarantees.



**FIGURE 7.40 BIAS OF PAYMENTS AND RELATED MATTERS**

The neutral responses received for payments, scope changes and insurance and guarantees were similar. Bias in favour of the Employer was strongest for insurance and guarantees and second strongest for payment clauses. **Figure 7.41**, **Figure 7.42** and **Figure 7.43** show the number of responses received.

## Survey

Bias in favour of the Contractors received the more responses than the bias in favour of the Employer for scope changes.

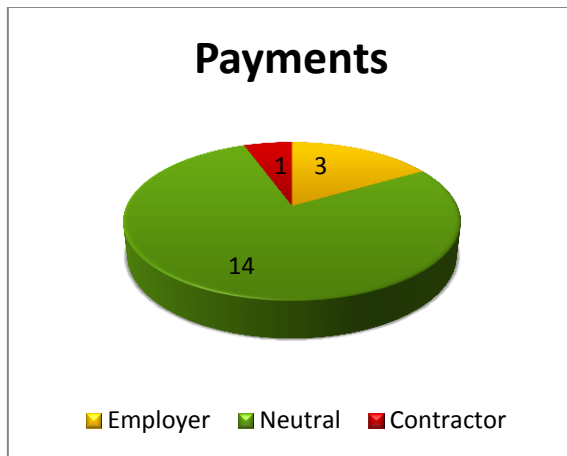


FIGURE 7.41 PAYMENT BIAS

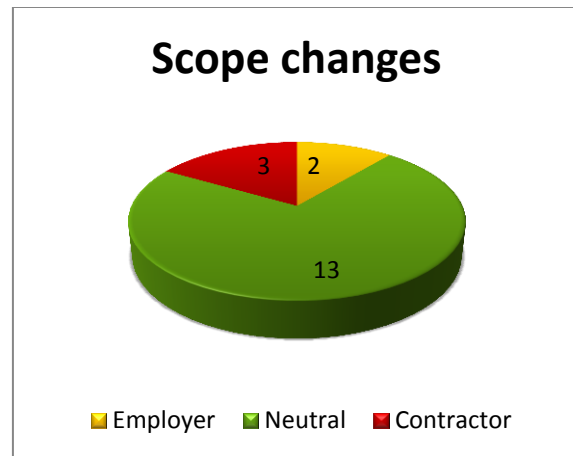


FIGURE 7.42 SCOPE CHANGES BIAS



FIGURE 7.43 INSURANCE AND GUARANTEES BIAS

## Survey

**Quality and related matters**

Only one question was asked regarding **quality and related matters** in the survey. 18 responses were received of which 14 were neutral, 2 in favour of the Employer and 2 in favour of the Contractor, as shown in **Figure 7.44**.

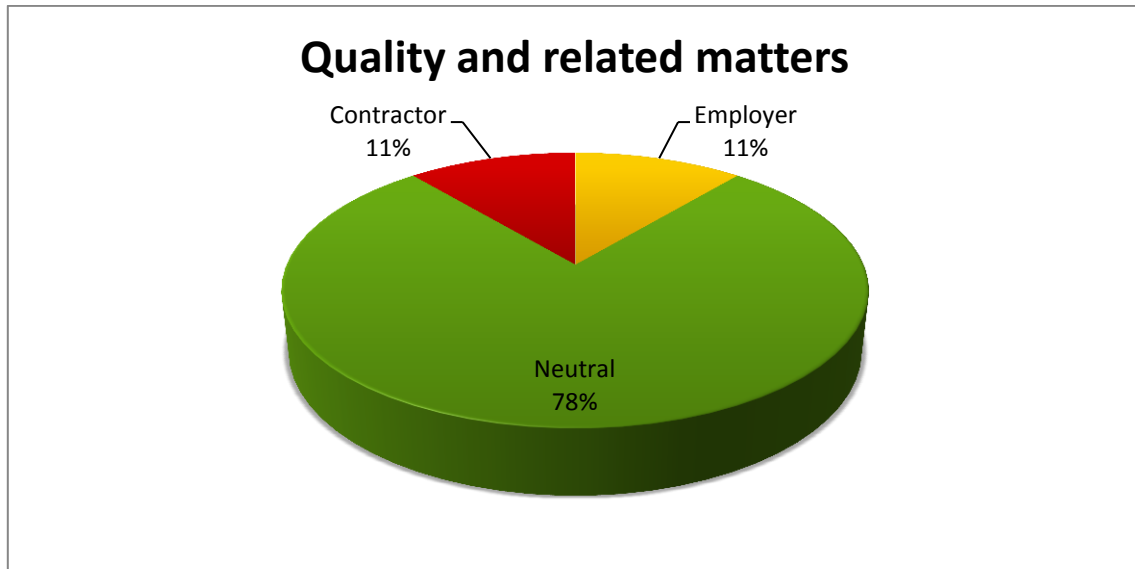


FIGURE 7.44 BIAS OF QUALITY AND RELATED MATTERS

**Risk and related matters**

Risk allocation and design responsibilities were combined to provide the results for **risks and related matters**. The results shown in **Figure 7.45**, show that 20 out of 36 responses were neutral and 13 were in favour of the Employer. Only 3 were in favour of the Contractor.

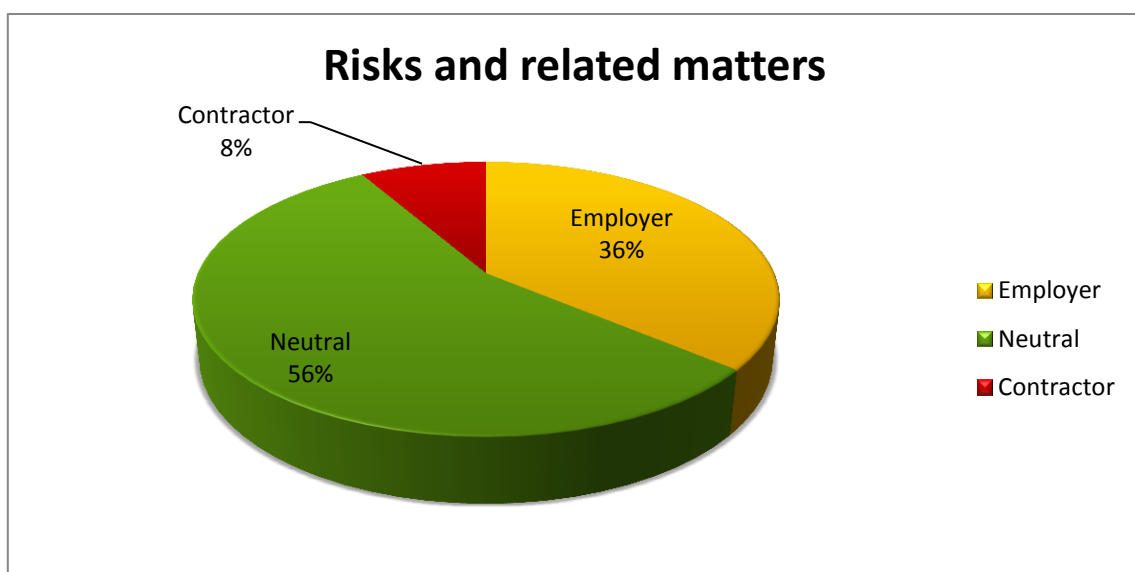


FIGURE 7.45 BIAS OF RISKS AND RELATED MATTERS

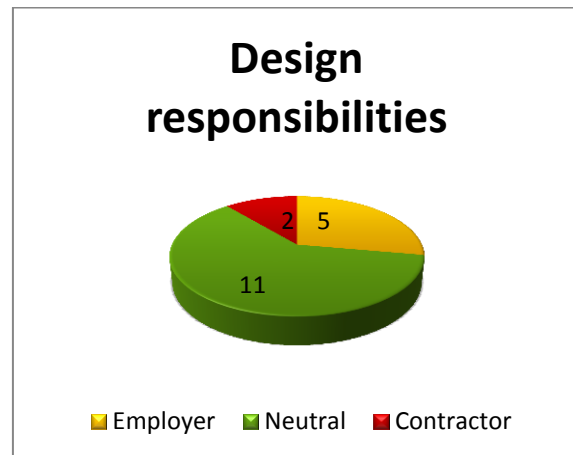
## Survey

Half of the responses received for risk allocation were neutral and only one response was given in favour of the Contractor. Bias in favour of the Employer was selected by a relatively high number of respondents.

The risk allocation responses are shown in **Figure 7.46** and the responses for design responsibilities are shown in **Figure 7.47**.



**FIGURE 7.46 RISK ALLOCATION BIAS**



**FIGURE 7.47 DESIGN RESPONSIBILITIES BIAS**

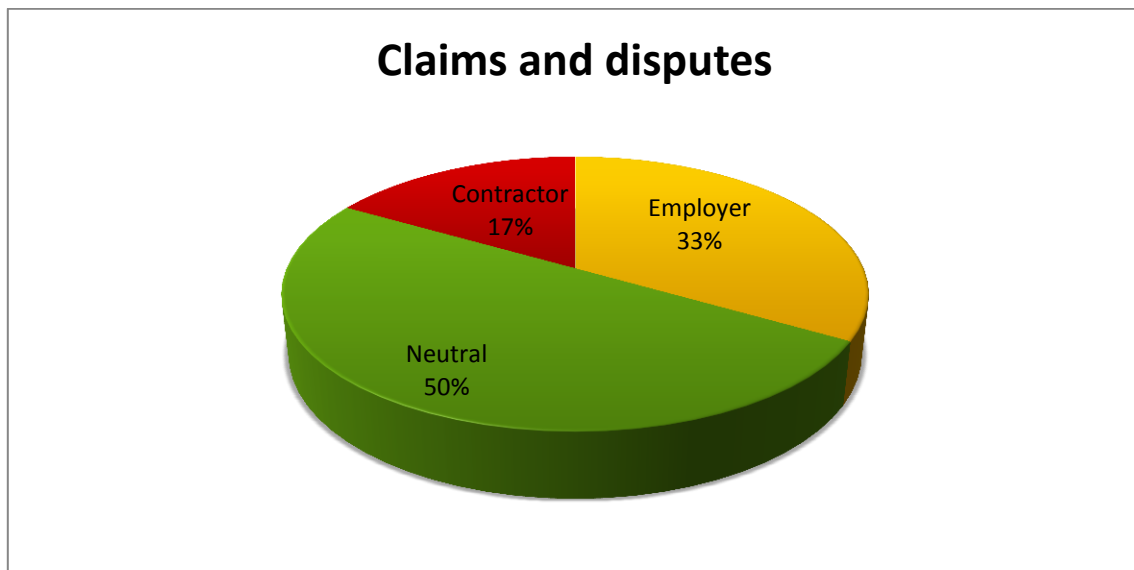


## Survey

***Claims and disputes***

**Claims and disputes** was a question on its own in the survey and is not made up of a combination of a number of questions.

9 of the responses received were neutral, representing half of the respondents. 6 respondents selected that claims and disputes are in favour of the Employer, while 3 were in favour of the Contractor. The results are shown in **Figure 7.48**.



**FIGURE 7.48 BIAS OF CLAIMS AND DISPUTES BIAS**

## Survey

7.7.4.3 BIAS **WITH** ALTERATIONS

Similar to the results of the question in **section 7.7.4.2**, the third question asked respondents to indicate their perception of the bias of the GCC 2010 when the standard clause are altered. Four respondents again selected the “N/A” option when answering the question and the 18 other respondents completed the question as normal.

The grouping and responses also had the same structure as that of **section 7.7.4.2**:

- **Overall** **(162 responses)**
  - **Time and related matters** **(36 responses)**
    - *Latent defects* *(18 responses)*
    - *Delays* *(18 responses)*
  - **Payment and related matters** **(54 responses)**
    - *Payments* *(18 responses)*
    - *Scope changes* *(18 responses)*
    - *Insurance and guarantees* *(18 responses)*
  - **Quality and related matters** **(18 responses)**
    - *Quality* *(18 responses)*
  - **Risk and related matters** **(36 responses)**
    - *Risk allocation* *(18 responses)*
    - *Design responsibility* *(18 responses)*
  - **Claims and disputes** **(18 responses)**
    - *Claims and disputes* *(18 responses)*

**Overall bias**

The overall bias of the GCC 2010 *with* alterations to clauses, shown in **Figure 7.49**, is perceived to be much more in favour of the Employer. When the neutral and Contractor bias is taken into account, the Employer still has a 53% favour.

This bias may potentially be attributed to the fact that Employers drafts the contracts and any alterations made would be in their own interest.

## Survey

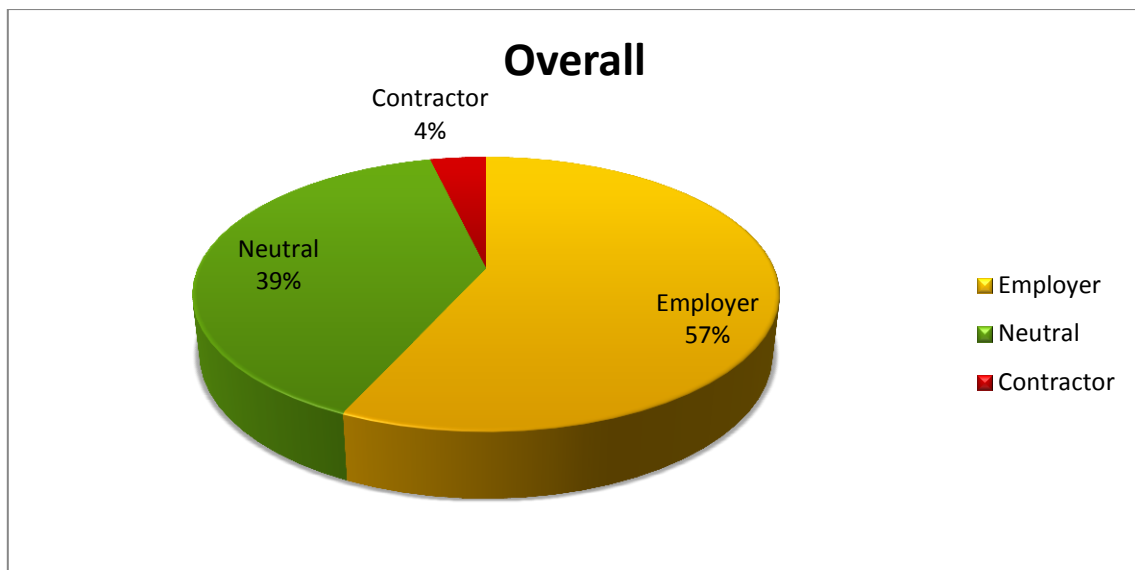


FIGURE 7.49 OVERALL BIAS OF GCC 2010 WITH ALTERATIONS

### *Time and related matters*

**Time and related matters** showed a slightly lower Employer bias compared to the overall results, but still half of the responses received were in favour of the Employer. Three responses were in favour of the Contractor and the remaining responses were neutral.

**Figure 7.50** shows the combined results from latent defects and delays.

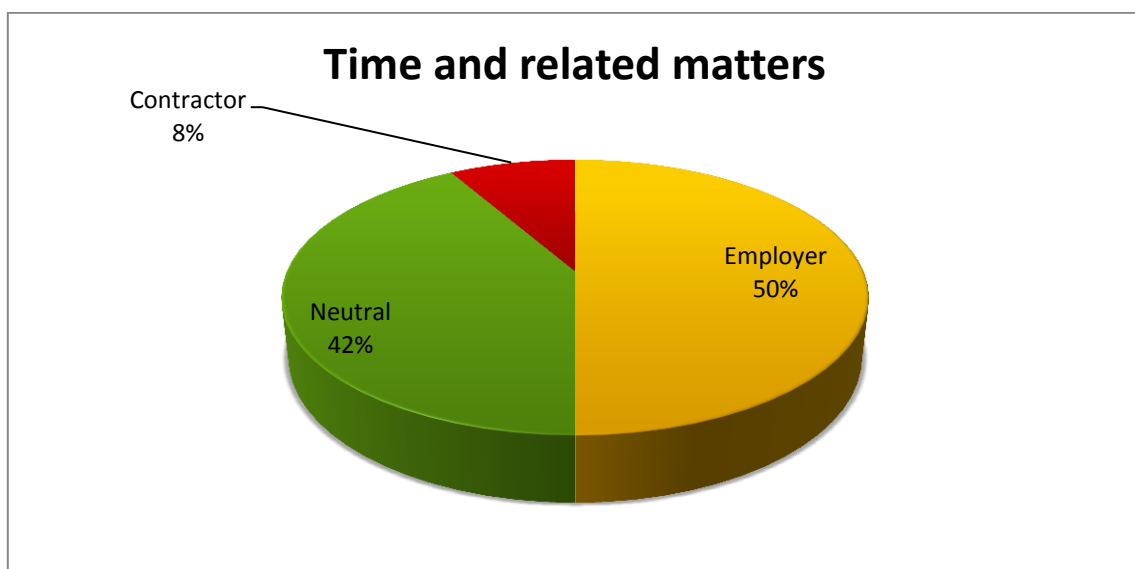


FIGURE 7.50 BIAS OF TIME AND RELATED MATTERS

## Survey

**Figure 7.51** shows that the latent defects clauses received more neutral responses than responses in favour of the Employer. Delays in contrast showed that neutral responses were less than half of responses in favour of the Employer, as shown in **Figure 7.52**.

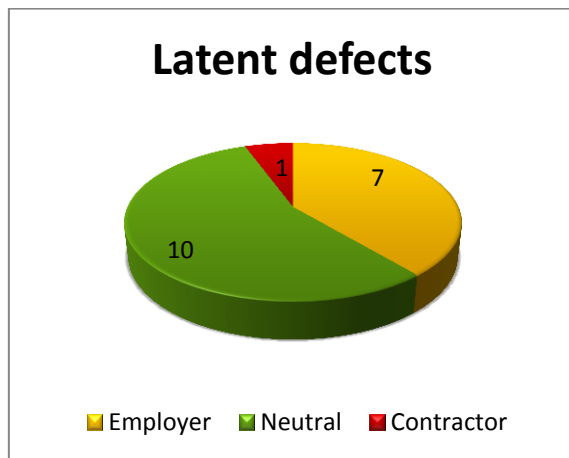


FIGURE 7.51 LATENT DEFECTS BIAS

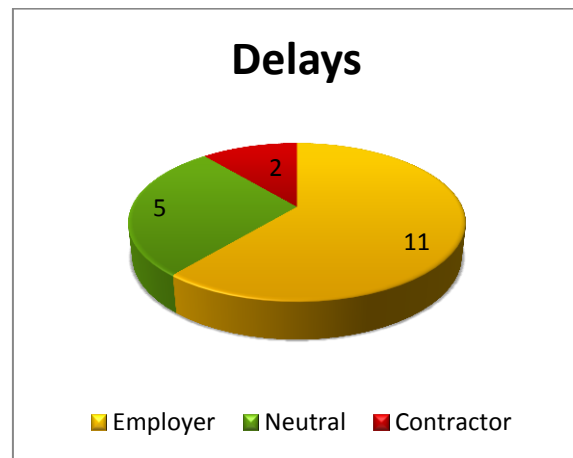


FIGURE 7.52 DELAYS BIAS

### ***Payments and related matters***

Payments and related matters resembled the overall results closely. More than half of the responses favoured the Employer, as **Figure 7.53** illustrates. Twenty out of the combined 54 responses were neutral and only 2 were in favour of the Contractor.

Responses from the questions of payments, scope changes and insurance and guarantees were combined to form the payments and related matters data.

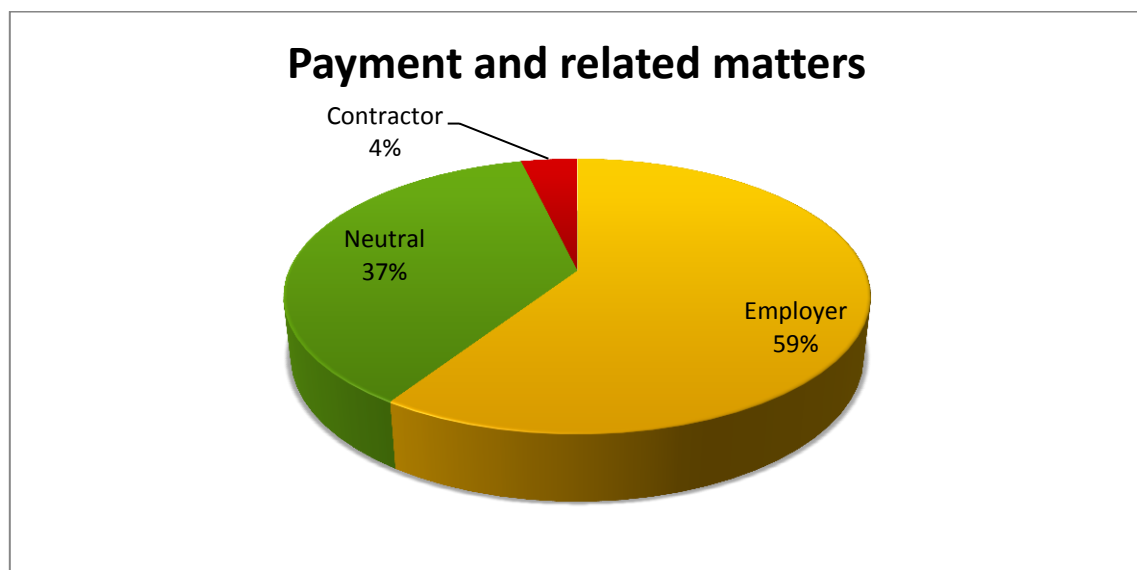


FIGURE 7.53 BIAS OF PAYMENTS AND RELATED MATTERS

## Survey

Both payments (**Figure 7.54**) and insurance and guarantees (**Figure 7.56**) questions received 11 responses in favour of the Employer and 7 neutral responses. Two responses in favour of the Contractor and 6 neutral responses were received for Scope changes, shown in **Figure 7.55**. The remaining 10 respondents answered in favour of the Employer.

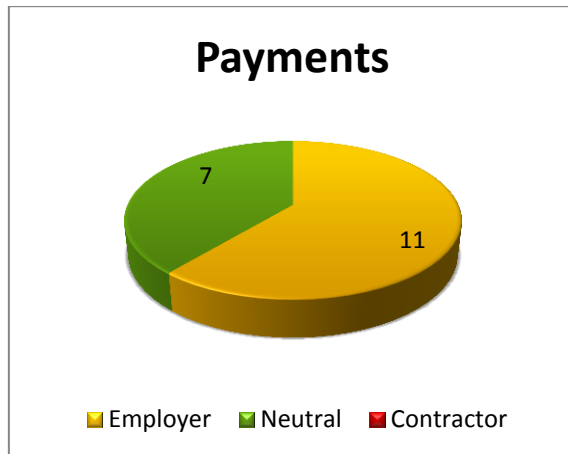


FIGURE 7.54 PAYMENT BIAS

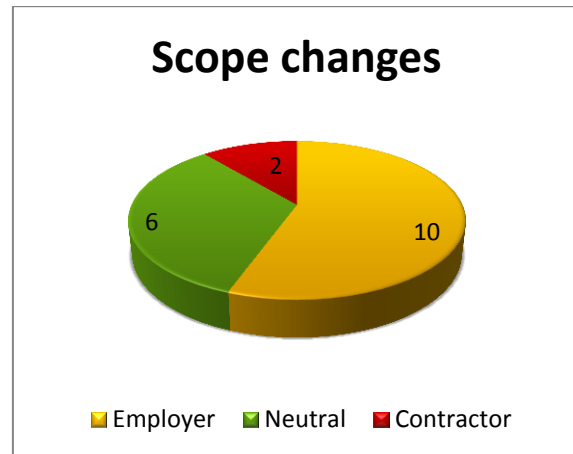


FIGURE 7.55 SCOPE CHANGES BIAS

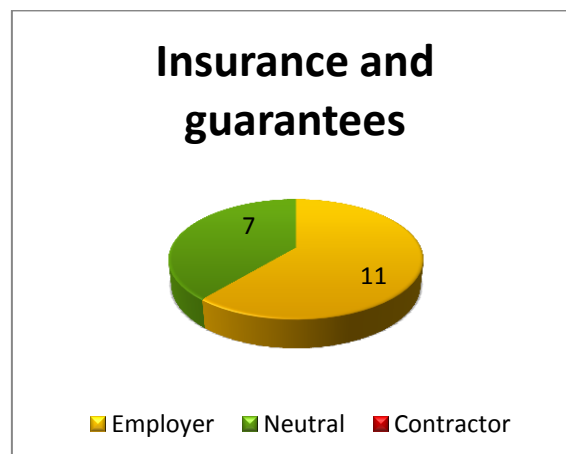


FIGURE 7.56 INSURANCE AND GUARANTEES BIAS

## Survey

**Quality and related matters**

**Quality and related matters** results showed that half of the responses were neutral and half were in favour of the Employer, as shown in **Figure 7.57**.



FIGURE 7.57 BIAS OF QUALITY AND RELATED MATTERS

**Risk and related matters**

The combination of risk allocation and design responsibilities results formed the results for **risks and related matters**. The results are shown in **Figure 7.58**. Only one respondent answered in favour of the Contractor, while 22 answered in favour of the Employer. The bias toward Employers thus perceived to be 60% more than that of Contractors.

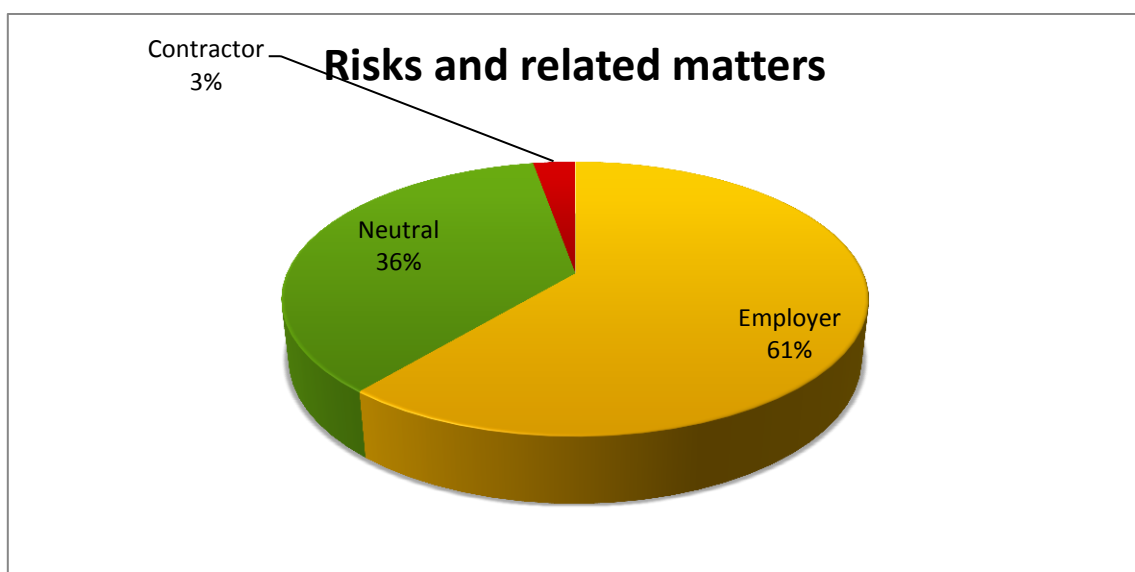


FIGURE 7.58 BIAS OF RISKS AND RELATED MATTERS

## Survey

12 responses from the risk allocation question were in favour of the Employer and only 5 were neutral. The only response in favour of the Contractor was also from the risk allocation question. The results are shown in **Figure 7.59**.

The design responsibility question received 8 neutral responses and 10 responses in favour of the Employer, as illustrated in **Figure 7.60**.



FIGURE 7.59 RISK ALLOCATION BIAS

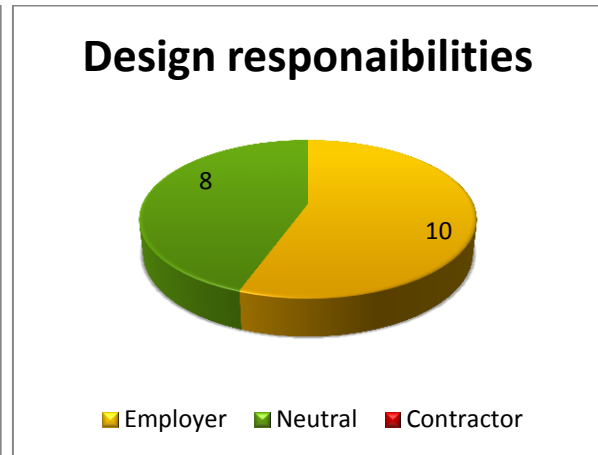


FIGURE 7.60 DESIGN RESPONSIBILITIES BIAS

***Claims and disputes***

**Claims and disputes** delivered no responses in favour of the Contractor and 61% in favour of the Employer. The remaining 39% of responses were neutral.

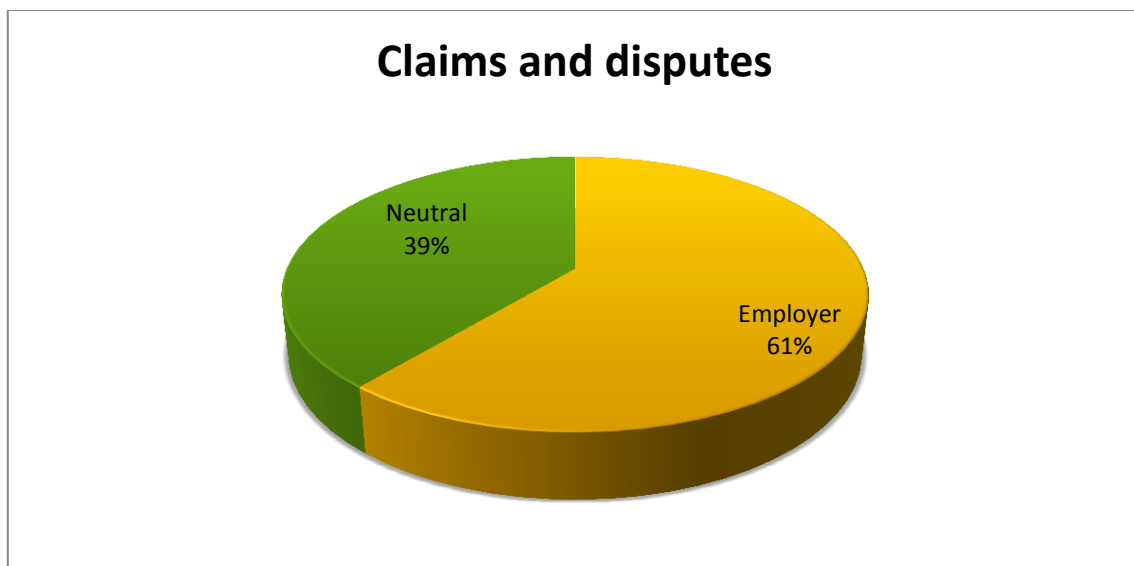


FIGURE 7.61 BIAS OF CLAIMS AND DISPUTES BIAS

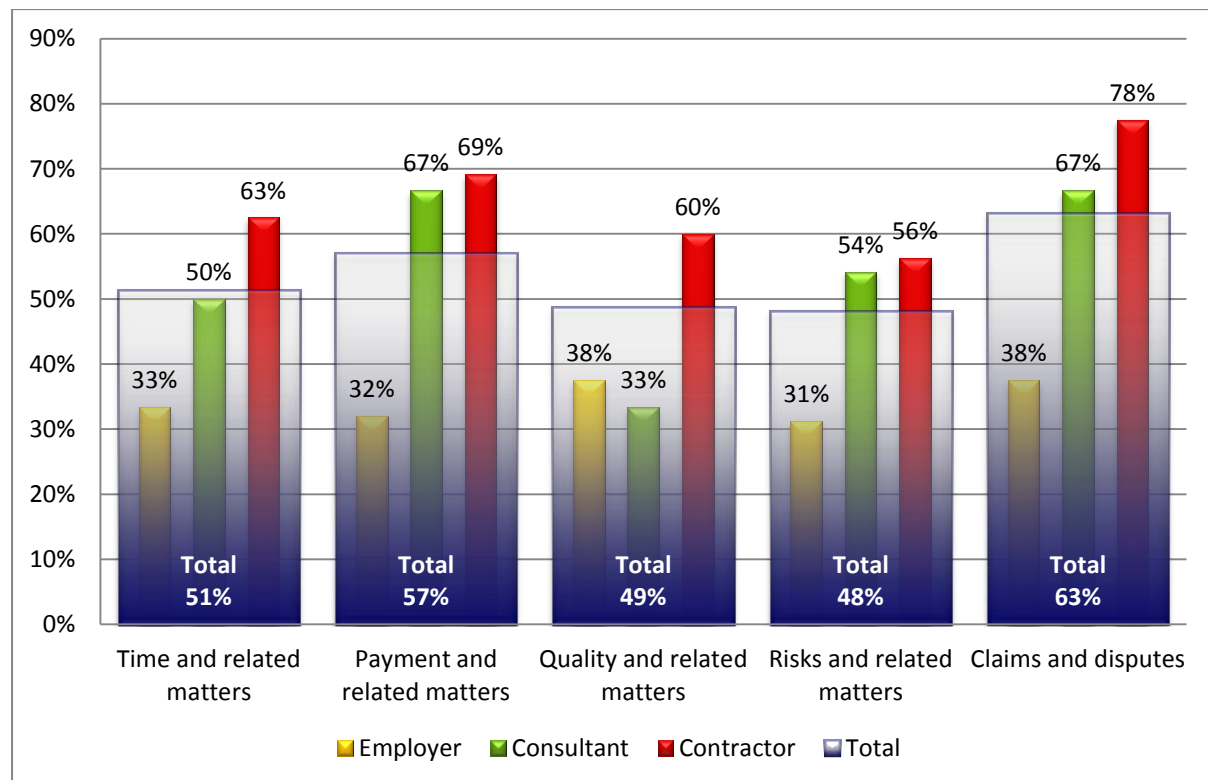
## Survey

## 7.7.4.4 SECTION SYNTHESIS

**Alterations to clauses**

The survey showed that respondents found claims and disputes were altered most often, followed by payment and related matters. Time and related matters, quality and related matters, quality and related matters and risks and related matters were all similarly rated to be altered sometimes.

**Figure 7.62** shows the survey results grouped into the five categories.



**FIGURE 7.62 SUMMARY: ALTERATIONS TO CLAUSES OF THE GCC 2010**

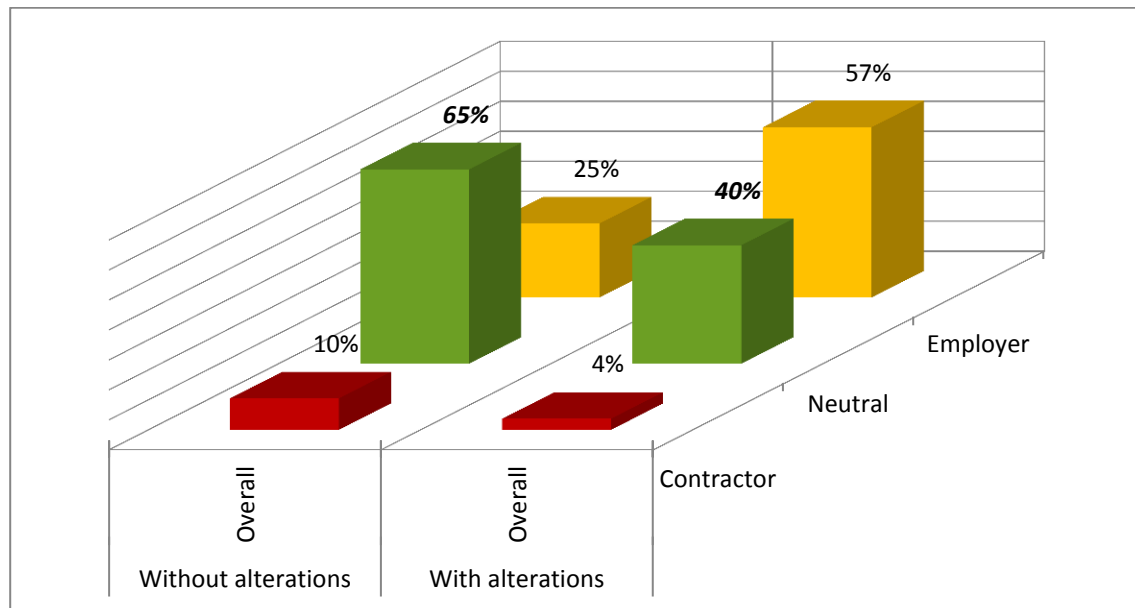
The results received from Employers were significantly lower than the results received from Contractors and Consultants. A possible reason for this difference may be that **Employers may not be aware of alterations made to procurement documents**, due to Consultants drafting the documents on the Employer's behalf. A second possible reason may be that some Employers have developed their own conditions of contract that do not require any alterations.



## Survey

**Overall bias**

The overall bias results showed that 65% of respondents rated that the GCC 2010 was neutral without any alterations. This number reduced to 40% when alterations are made to the document. In comparison, the bias in favour of the Employer increases from 25% when no alterations are made to 57% when the document is altered. **Figure 7.63** shows the distribution of the survey results regarding the bias of the GCC 2010 with and without alterations



**FIGURE 7.63 SUMMARY: OVERALL BIAS**

**Bias without alterations**

**Figure 7.64** shows the summary of the respondents views about the bias of the GCC 2010 without alterations. Quality and related matters were deemed to be handled with a high level of fairness, whereas claims and disputes, as well as risk and related matters had a significant increase in bias in favour of the Employer.

## Survey

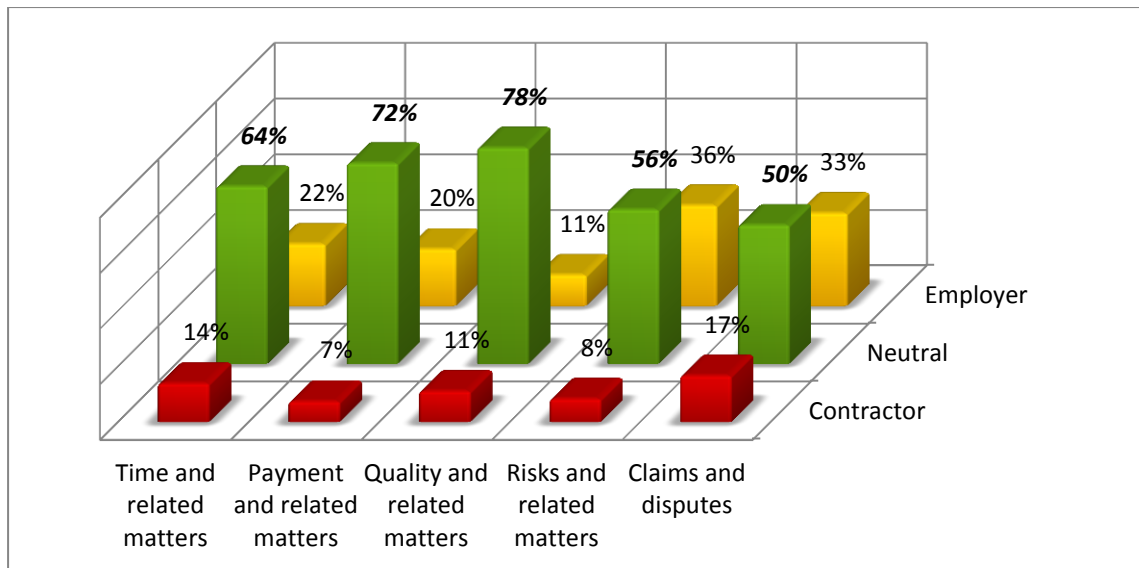


FIGURE 7.64 SUMMARY: BIAS OF THE GCC 2010 WITHOUT ALTERATIONS

**Bias with alterations**

In contrast to bias of the GCC 2010 without alterations, the general tendency is that the bias is strongly in favour of the Employer, as shown in **Figure 7.65**.

The drastic increase in bias toward the Employer may be attributed to the fact that the Employer is responsible for drafting the contract and that the alterations made are primarily to protect self-interest.

The consequences of altering standard clauses may not always be known to Consultants or Employers.

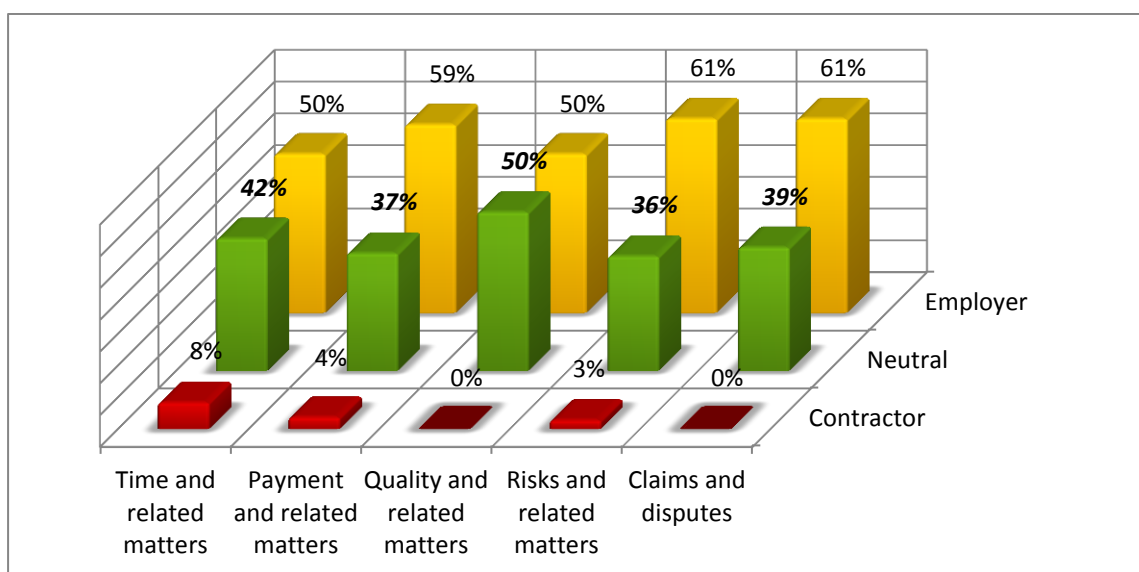


FIGURE 7.65 SUMMARY: BIAS OF THE GCC 2010 WITH ALTERATIONS

## 8 CONCLUSION AND RECOMMENDATIONS

### 8.1 CONCLUSION

The conclusion is made by discussing the findings of the study in accordance with the research objectives set out in **chapter 1**.

#### 8.1.1 OBJECTIVE A:

***“To test whether revisions to the GCC from the 2004 edition to the 2010 edition resulted in a document that better complies with the requirements of the modern contract.”***

#### **Project types**

The survey results indicate that both the GCC 2010 and the GCC 2004 are well suited for *roads and earthworks projects* and reasonably suitable for use on building projects. These results support the findings from the CIDB's Construction Industry Indicators (CII) that indicate that the GCC has been used in more than 80% of civil projects in 2009, 2010 and 2011 and roughly 65% of civil projects in 2006 and 2007.

There was, however, only a marginal improvement on the suitability of the GCC 2010 for roads and earthworks projects, as well as specialist project compared to the GCC 2004. The suitability rating for building projects remained unchanged at 51%.

The GCC 2010 claims to be suitable for projects from other disciplines such as mechanical and electrical engineering, but the limited survey showed no improvement in this area compared to the GCC 2004.

## Conclusion and recommendations

### Pricing strategies

The primary contracting strategy for which the GCC 2010 and the GCC 2004 were developed is *design by the Employer*. The related pricing strategy typically applied to this contracting strategy is the use of a *bill of quantities* or *schedule of rates*. The foreword of the GCC 2010 states that the document is also suitable for design and build contracting strategy, for which the pricing strategy is *lump sum*. As mentioned, however, the main purpose is that of a *design by the Employer* strategy.

Survey results found that both the GCC 2010 and the GCC 2004 documents were most suited for unit price strategies, such as the use of a bill of quantities or schedule of rates. According to survey respondents, the lump sum pricing strategy was not particularly suited to be applied with either the GCC 2010 nor the GCC 2004.

### Three pillars of the modern contract

The three pillars of the modern contract, *fairness*, *clarity of roles* and *payment operating mechanisms* was the measure against which the GCC 2010 and the GCC 2004 were compared.

#### *Fairness*

The results of the survey showed that even without alterations to standard clauses the GCC 2010 is perceived as being unfair in certain aspects, especially in the areas of claims and disputes and risks. This is evident in light of the fact that there was no difference in the fairness rating between the GCC 2010 and the GCC 2004.

#### *Clarity of roles*

The foreword of the GCC 2010 stated that the revision cleared up responsibilities of the Employer and the Contractor. This statement is supported by the fact that the survey results showed that there was a significant improvement in clarity of roles when compared to the GCC 2004.

## Conclusion and recommendations

*Payment operating mechanisms*

The clause-by-clause analysis showed that the changes made to payment and related matters were primarily in favour of the Contractor. These changes made a noticeable impact on the rating of payment operating mechanisms, as the GCC 2010 was rated 5% higher than the GCC 2004 in this area. Although there was an improvement, the merit of the GCC 2010 with regards to payment operating systems was 63%, which means that there is still room for further development.

## 8.1.2 OBJECTIVE B:

***“To determine the extent and effect of alterations to standard clauses of the GCC 2010 on the way in which the contract favours a particular party.”***

The two categories that are the least neutral and the most biased in favour of the Employer are **claims and disputes**, and **risks and related matters**.

Furthermore, it is noted that alterations made to the clauses of the GCC 2010 by Employers (or Consultants) drafting the contract, had a negative impact on the bias and the risk profiles of the Employer and the Contractor. Unfortunately, alterations are beyond the control of SAICE or the CIDB and can only be addressed effectively if Employers are committed to using the document as is.

The findings of each of the following categories are briefly discussed and **figures** presented showing (*in order from left to right*) the ***bias distribution where standard clauses have not been altered***, the ***bias distribution where standard clauses have been altered*** and on the far right of the figures the resultant ***bias of revisions to the GCC from the 2004 edition to the 2010 edition***.

**Time and related matters**

The revisions made to the GCC when comparing the 2010 and 2004 editions regarding clauses on time and related matters were primarily neutral and to a lesser extent in favour of the Contractor, as shown in **Figure 8.1**. These revisions appear to have had a positive effect on the neutrality of the document as a high percentage of respondents gave a neutral rating.

## Conclusion and recommendations

Although only sometimes altered, alterations to standard clause regarding time and related matters significantly favour Employers and reduces the neutrality of the document.

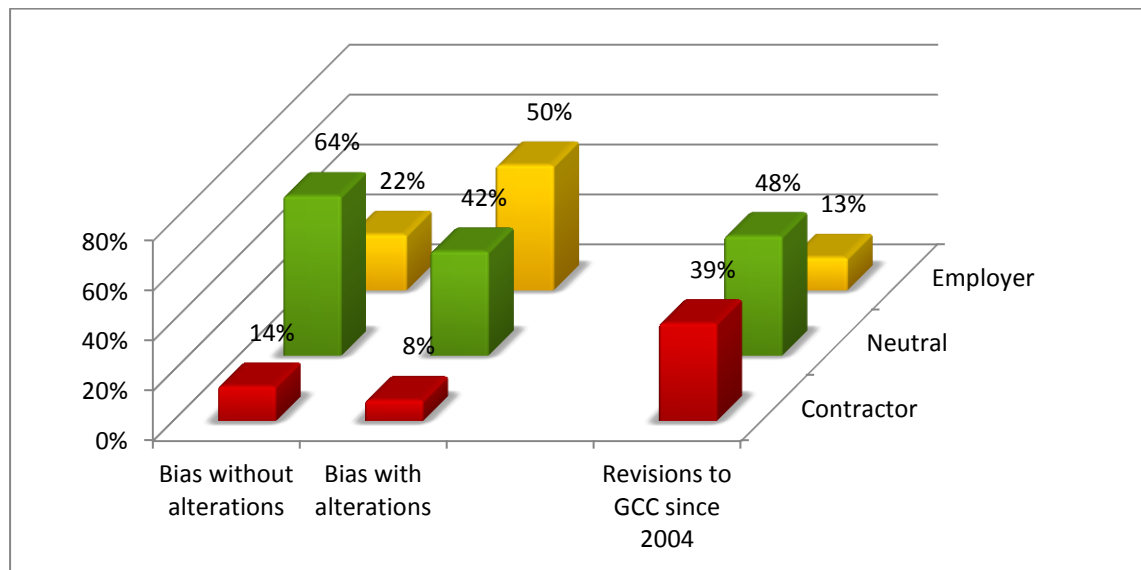


FIGURE 8.1 CONCLUSION: TIME AND RELATED MATTERS

### Payment and related matters

**Figure 8.2** shows that the revisions made to the GCC when the GCC 2010 and the GCC 2004 are compared were mostly in favour of the Contractor. These revisions seem to have resulted in a high neutrality of the document. Despite the high number of revisions in favour of the Contractor, the bias of the GCC 2010 in favour of the Contractor is low – potentially meaning that there was a strong bias in favour of the Employer in the GCC 2004.

Clauses on payment and related matters are altered second most after clauses on claims and disputes. When alterations are made to standard clauses, the Employer is favoured highly and Contractors receive very little favour.

## Conclusion and recommendations

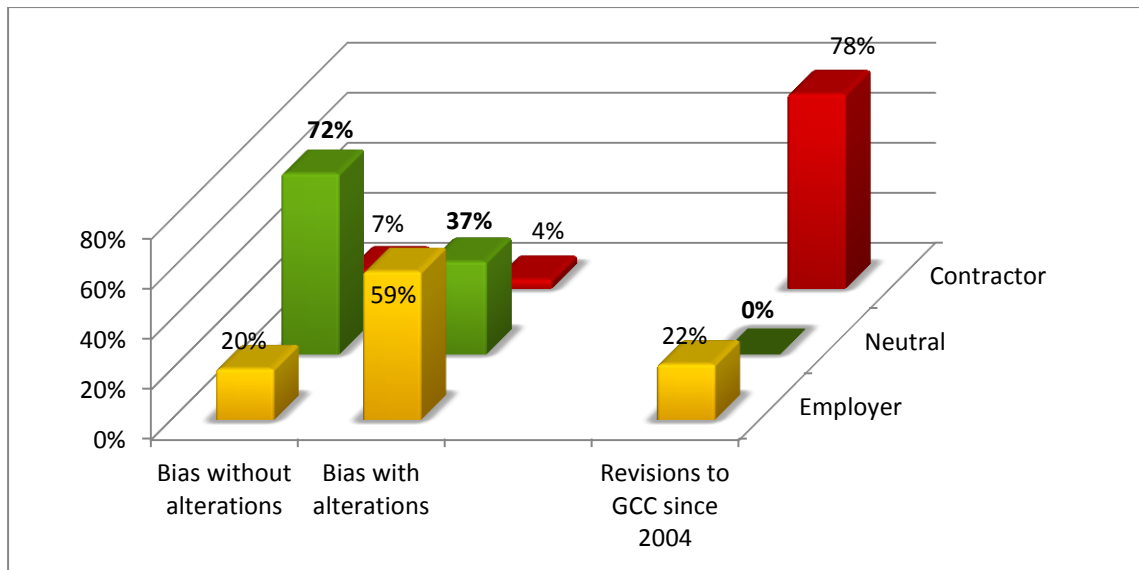


FIGURE 8.2 CONCLUSION: PAYMENT AND RELATED MATTERS

## Quality and related matters

Clauses on quality and related matters received the highest number of neutral responses from survey respondents. As indicated in **Figure 8.3**, the changes made to the clauses were evenly distributed, suggesting that the GCC 2004 had a fairly unbiased manner of handling quality and related matters to begin with.

When the standard clauses are altered, the perception is equally split between neutral and bias in favour of the Employer.

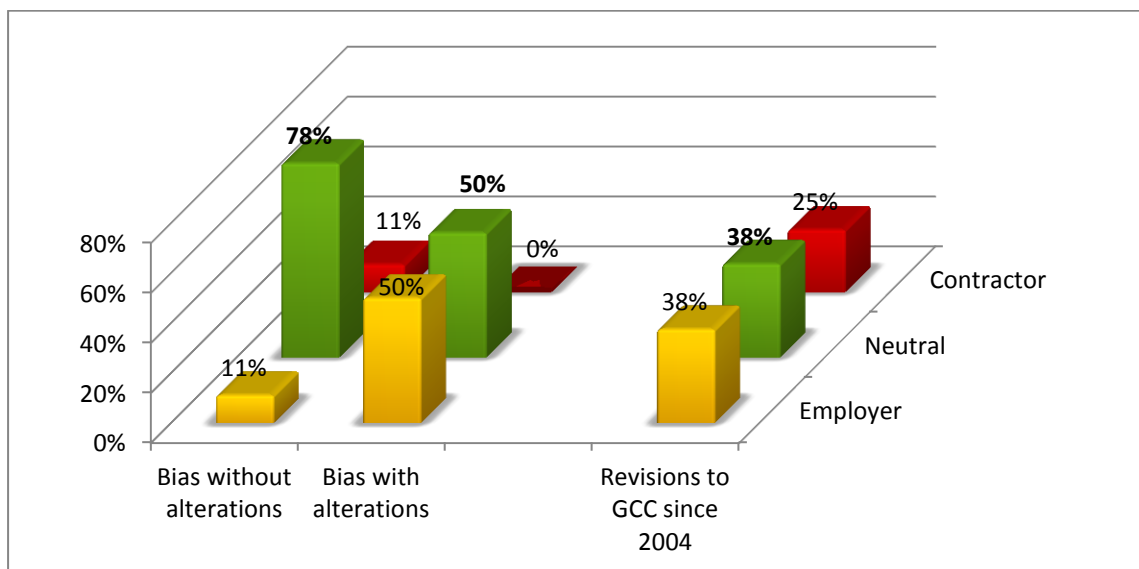


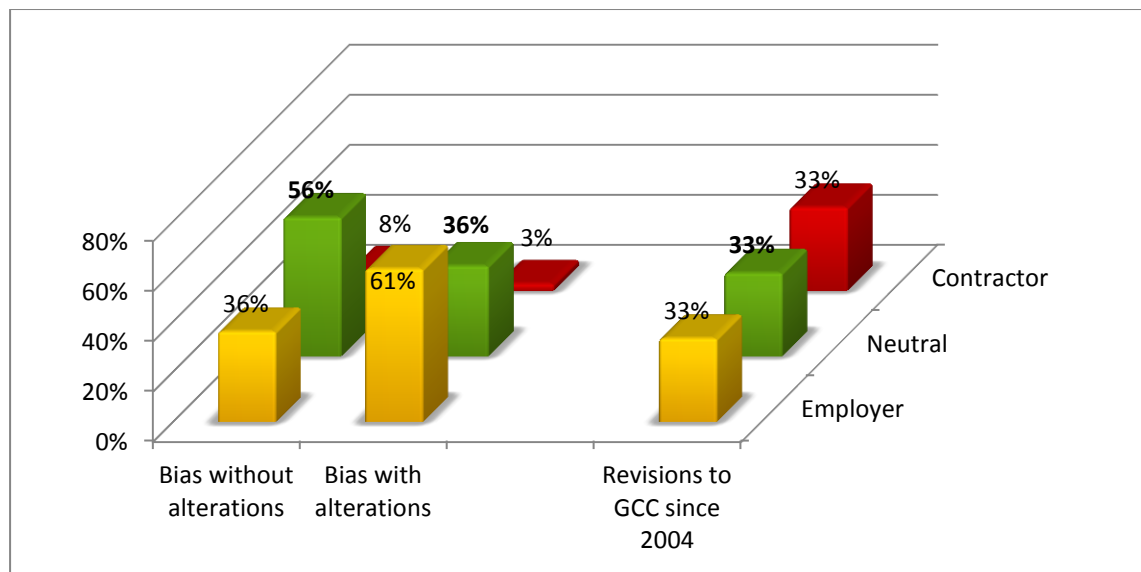
FIGURE 8.3 CONCLUSION: QUALITY AND RELATED MATTERS

## Conclusion and recommendations

**Risk and related matters**

The least number of changes were made to clauses on risks and related matters, subsequently there still appears to be a strong bias in favour of the Employer in this category, as indicated in **Figure 8.4**. There is thus room for further investigation and refinement in this category.

Standard clauses relating to risks and related matters are altered least often of all the categories. This may be attributed to the fact that Employers enjoy a high level of bias and are thus less inclined to make alterations.



**FIGURE 8.4 CONCLUSION: RISK AND RELATED MATTERS**

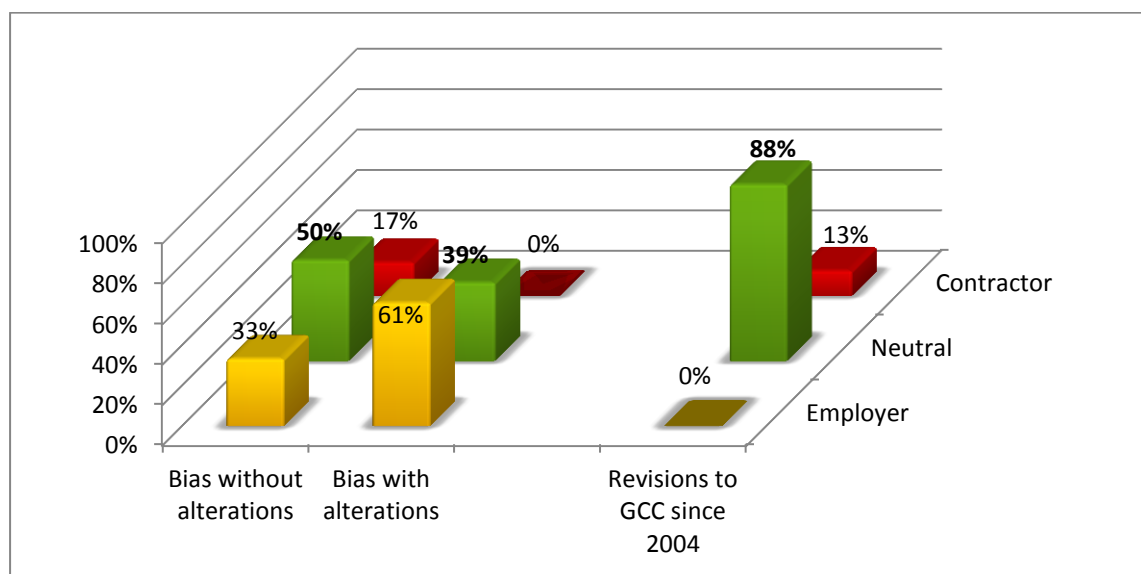


## Conclusion and recommendations

**Claims and disputes**

Despite the fact that clauses on claims and disputes underwent the second most changes, it was deemed to be the least neutral of the five categories and had a relatively high Employer bias, as shown in **Figure 8.5**. This may be because the majority of changes were made to dispute resolution processes rather than to claims related clauses.

The conclusion drawn from the survey is that claims and disputes is the category that is altered most often by Employers. The assumption can be made that even more refinement needs to be done in this category, especially on the subject of fairness.



**FIGURE 8.5 CONCLUSION: CLAIMS AND DISPUTES**

## Conclusion and recommendations

### 8.1.3 OBJECTIVE C:

**“Providing recommendations for future revisions that would potentially improve project success, relationship building and reduce the need for significant alterations to the standard form of contract.”**

Overall it appears as though Employers tend to alter standard clauses in their own interests irrespective of the bias of the document. This means that the attitude with which parties enter into a contract may be one with adversarial undertones, rather than trust and an understanding of mutual interdependency.

**It is recommended that:**

- Future revisions of the GCC focus on **promoting and strengthening relationships between Employers and Contractors** with the eye on sustaining long term relationships and success.
- **Knowledge be shared between Employers, Consultants and Contractors** to contribute to more open relationships and the reduction of claims and disputes because of miscommunication and misinformation. This could be achieved by means of a quality plan for communication protocols to ensure proper communication and that correct information is conveyed.
- The GCC 2010 aims at being more versatile for use across disciplines outside civil engineering, however, the suitability for these disciplines is limited. It is recommended that **the application to different disciplines be separated from the original document** and the incorporation of supplementary documents be considered.

## Conclusion and recommendations

### 8.1.4 CONCLUSIVE SUMMARY

Two significant findings were deduced from this study. Each finding is summarised in the section below.

***Claims and disputes, and risks and related matters, were the least neutral aspects of the GCC 2010.***

Out of the five categories, claims and disputes, and risks and related matters, were the least neutral with some bias in favour of the Employer.

Despite the fact that the bias in the GCC document leaned more in favour of the Employer, claims and disputes clauses were found to be altered the most. This is indicative that Consultants and/or Employers may not be comfortable with how the GCC 2010 handles claims and disputes.

Risks and related matters were found to be altered the least, suggesting that Employers and/or Consultants may be less inclined to alter these clauses due to the fact that there is already a bias in the favour of Employers.

***Employers and Consultants who utilise standard procurement documents, tend to make alterations to clauses, there by changing the document bias without realising the potential implications of increasing the allocation of risk to Contractors.***

Both Contractors and Consultants reported that standard clauses are altered often, while Employers did not. It would thus seem that Consultants drafting contracts on behalf of Employers make alterations to clauses that Employers may not be aware of.

From the content analysis, it is clear that institutions that publish standard procurement documents continuously strive to improve the document with the aim of ensuring fairness in contracts.

Procurement documents are tools that should be used to successfully complete construction projects and develop business relationships between Employers and Contractors. Ultimately, the application of any procurement document is up to the individual that is using it.

*The success of any construction project is dependent on the attitudes of the participants. Even the most fair procurement document is not a substitute for a relationship built on honesty and trust.*

## 8.2 RECOMMENDATIONS FOR FURTHER STUDY

### Industry survey

There were a number of shortcomings of the survey that can be improved on by further research.

Firstly, a much larger sample group and higher response rate from the Employers, Contractors and Consultants is needed to be more representative of the industry. Furthermore, a higher number of responses would allow the researcher to make more conclusive statistical calculations and deductions.

Secondly, the questions of a survey can be directed to address a specific aspect of procurement documents. Multiple surveys can be set up for different studies, each focussing on an individual aspect.

The individual aspects are discussed below with specific areas that are recommended for further research:

#### *Time*

- How is the initial construction programme set up and who is authorised to make or propose adjustments to the programme?
- What are the implications of delays not on the critical path (that would not push out the completion date) and how are they dealt with contractually?
- What are the primary and secondary impacts of delays that are not on the critical path?

#### *Cost*

- Which contracting strategies are best suited to what project type?
- What are the most effective pricing strategies for different contracting strategies?
- How do securities, guarantees, insurances and retention monies vary over the course of the project lifecycle?
- Is the current system fair towards the Contractor/Employer?
- What are the various payment strategies available and to which pricing/contracting strategy are the suited?
- How do the consequences of variation orders differ from the consequences of delays with regards to contract price adjustment?

## Conclusion and recommendations

### *Quality*

- Is there any subjectivity in the quality assessment and testing of certain products?
- How are defects or reduction in quality due to wear and tear measured in light of the Contractors latent defect liability?
- What is the relationship between design quality and construction quality?
- How does the understanding (or lack thereof) of constructability that designers possess affect the quality of construction?
- What is the effect of proper construction monitoring on quality?

### *Risks*

- Has sufficient effort been made by the Employer and the Consultant to identify project risks by the time that a project goes out on tender?
- Who is responsible for the identification of risks?
- How is the Contractor's risk profile incorporated into the procurement document?

### *Claims and disputes*

- How fair and effective is the current claiming procedure?
- What are alternatives to settle disagreements other than initiating a dispute?
- Can the Consultant objectively rule on the Contractor's claims if the Consultant is responsible for the project designs?
- Would an interest based dispute resolution process have a positive or negative effect on settling claims and disputes?

While further study comparing the GCC 2010 and the GCC 2004 may become obsolete in the near future, if a new edition is published, the same principles may be applied to comparing a current edition to a previous one.

These principles should also not be limited to the GCC procurement documents only, but can be applied to comparing different editions of other procurement documents and even be used to compare different procurement documents with each other.

Furthermore, an aspect that should be considered is the value of the contract price, rather than only the frequency of use.

## Conclusion and recommendations

### Clause-by-clause analysis

In this study, the clause-by-clause analysis was relatively straightforward to perform on the GCC 2010 and the GCC 2004 as the former is a direct revision of the latter and many of the clauses remained similar. In this study, the analysis was used to compare the changes brought about to the latest edition of the document.

However, moving away from a comparative study, a more in-depth analysis could be done on the GCC 2010 to determine the possible impact that the clauses may have on the Employer and the Contractor. This principle could be applied to any procurement document. The results of the analyses from different documents could be compared using a number of common industry scenarios.

The abovementioned recommended study could be divided into two streams: **Legal perspective** and **practical application**. An extensive knowledge of contract and construction law would be required for an objective and accurate study from a legal perspective, while hands-on experience in the drafting, altering, use and implementation of construction contracts would be necessary for a study on practical application.

### Employer education

The level of experience and exposure that Employers have regarding the use of procurement documents should be researched. This could provide a platform from which inexperience can be addressed by educating Employers on principles of contracting and the correct application of existing procurement documents.

Consultants should be more proactive in involving Employers in the tendering process and discuss different contractual document alternatives to reduce the need for altering standard clauses in the procurement document.

Contractors should highlight potential effects of alterations to standard clauses on themselves and the Employer to further educate Employers.

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## Appendices

# 10 APPENDICES

## 10.1 APPENDIX A: ONLINE SURVEY

### 10.1.1 SURVEY INFORMATION

#### Survey on procurement documents in the built environment

Survey regarding the use of procurement documentation in the built environment.

\* Required



#### Survey information

The length of this survey is 5 pages and should take approximately 5-10 minutes.

This survey will assist in academic research regarding the use of procurement documents in the construction industry, done at the Department of Civil Engineering (Chair for Construction and Engineering Management) at Stellenbosch University.

All information will be treated with strict confidentiality and be used for academic purposes only. Individuals and/or companies will not be identified in the research results.

Analysis and interpretation of the survey results will be done by Wolfram Klingenberg, for his thesis towards a Master's degree in Civil Engineering. The analysis will be done under the guidance of Prof. Jan Wium.

If you have any problems or queries, please do not hesitate to contact either Wolfram or Prof. Wium.

In the event that a question asks something that you are not familiar with, please select the "N/A" option. This will enable you to continue with the survey.

Thank you for your participation.

#### Contact information

Wolfram Klingenberg - MEng|Civil Student  
[14805332@sun.ac.za](mailto:14805332@sun.ac.za)

Prof. Jan Wium - Murray & Roberts Chair in Construction and Engineering Management  
[janw@sun.ac.za](mailto:janw@sun.ac.za)

#### Disclaimer \*

I have read the information regarding the survey and agree to participate.

- ☐ Agree  
☐ Disagree

[Continue »](#)

## Appendices

### 10.1.2 GENERAL INFORMATION

Edit this form

## Survey on procurement documents in the built environment

**\* Required**

### Survey page 1 of 5 - General information

General information of the sample group used for statistical purposes.

**Industry role player \***

- ☐ Government employer (National, Provincial, Municipality etc.)
- ☐ Quasi-government employer (ESKOM, ACSA, Transnet etc.)
- ☐ Private employer (Commercial company, Developer etc.)
- ☐ Mining employer/consultant
- ☐ Project managing consultant
- ☐ Design consultant
- ☐ Roads & earthworks contractor
- ☐ Building contractor
- ☐ Specialist/Mining contractor
- ☐ Academic
- ☐ Other:

**Years experience \***


- ☐ 0-2
- ☐ 3-5
- ☐ 6-10
- ☐ 11-20
- ☐ 20+

**Contractor CIDB Grade**

1 2 3 4 5 6 7 8 9

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

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## Appendices

## 10.1.3 (CONTRACTOR) PROCUREMENT DOCUMENTS

Edit this form

## Survey on procurement documents in the built environment

**\* Required**

### Survey Page 2 of 5 - Procurement Documents

**Procurement documents used by GOVERNMENT employers \***  
In your experience, how often are the following documents used when concluding contracts with government employers? (National, provincial, municipalities, ESKOM, ACSA etc.)

	Never	Rarely	Sometimes	Often	Always	N/A
GCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIDIC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Procurement documents used by PRIVATE employers \***  
In your experience, how often are the following documents used when concluding contracts with private employers?

	Never	Rarely	Sometimes	Often	Always	N/A
GCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIDIC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Procurement document preference \***  
Please indicate your level of preference with regards to the different documents.

	Least preferred	Less preferred	Neutral	Slightly preferred	Strongly preferred	N/A
GCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIDIC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendices

**What are the reasons for the documents most preferred?**

**What impact have revisions or updates had on the following procurement documents? \***

	No impact	Improved	Deteriorated	N/A
GCC 2004 to 2010	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC Ed. 4 to Ed. 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC 2 to 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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## Appendices

## 10.1.4 (EMPLOYER) PROCUREMENT DOCUMENTS

Edit this form

## Survey on procurement documents in the built environment

**\* Required**

### Survey page 2 of 5 - Procurement documents

Use and preference of procurement documents

**Procurement document use \***

In your experience, how often are the following documents used when concluding contracts?

	Never	Rarely	Sometimes	Often	Always	N/A
GCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIDIC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**What are the reasons for using the document used most frequently?**

**Procurement document preference \***

Please indicate your level of preference with regards to the different documents.

	Least preferred	Less preferred	Neutral	Slightly preferred	Strongly preferred	N/A
GCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FIDIC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendices

What are the reasons for the documents most preferred?

What impact have revisions or updates had on the following procurement documents? \*

	No impact	Improved	Deteriorated	N/A
GCC 2004 to 2010	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
JBCC Ed. 4 to Ed. 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NEC 2 to 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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## Appendices

## 10.1.5 GCC 2010 vs GCC 2004

Edit this form

## Survey on procurement documents in the built environment

**\* Required**

### Survey page 3 of 5 - GCC 2010 vs GCC 2004

Questions specifically focussed on the GCC 2010 and 2004

**How has your preference toward the SAICE GCC been influenced by the revised edition? \***

☐ 2010 edition is MORE PREFERRED than 2004 edition  
☐ 2010 edition is LESS PREFERRED than 2004 edition  
☐ No influence  
☐ N/A

**How have alterations to standard clauses been influenced by the revised edition? \***

☐ 2010 edition has MORE alterations than 2004 edition  
☐ 2010 edition has LESS alterations than 2004 edition  
☐ No influence  
☐ N/A

**How suitable is the GCC 2010 for the following types of construction? \***

	Very poor	Poor	Adequate	Good	Very good	N/A
Roads & Earthworks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other industries (Mechanical, electrical)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**How suitable is the GCC 2004 for the following types of construction? \***

	Very poor	Poor	Adequate	Good	Very good	N/A
Roads & Earthworks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other industries (Mechanical, electrical)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendices

How suitable is the GCC 2010 for the following types of contract? \*

	Very poor	Poor	Adequate	Good	Very good	N/A
Lump sum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unit price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost plus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How suitable is the GCC 2004 for the following types of contract? \*

	Very poor	Poor	Adequate	Good	Very good	N/A
Lump sum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unit price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost plus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Modern contract

A recent study indicated that the effectiveness of a modern contract rests on three pillars: Fairness, Clarity of roles and functions of project participants and Payment operating mechanisms (including claims and disputes)

How effective is the GCC 2010 in the following areas? \*

	Very poor	Poor	Adequate	Good	Very good	N/A
Fairness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity of roles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Payment operating mechanisms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How effective is the GCC 2004 in the following areas? \*

	Very poor	Poor	Adequate	Good	Very good	N/A
Fairness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarity of roles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Payment operating mechanisms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

« Back

Continue »

## Appendices

## 10.1.6 GCC 2010 PAGE

Edit this form

## Survey on procurement documents in the built environment

**\* Required**

### Survey page 4 of 5: GCC 2010

For which of the following project types is the GCC 2010 is most commonly used for? \*

☐ Design and build

☐ Traditional projects (Construction only)

☐ Research and development

☐ Other:

**Alterations to standard contract clauses in the GCC 2010 \***

Please indicate how often the following aspects of standard clauses are altered when prepared by the employer

	Never	Rarely	Sometimes	Often	Always	N/A
Payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Latent defect liabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope changes/Variation orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality assurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance/Guarantees/Performance securities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Claims and disputes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk allocation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delays and time extensions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Other aspects in which standard clauses are altered**

**Reasons for altering standard clauses \***

☐ Neutralising bias

☐ Protecting personal interest

☐ Standard clause is impractical

☐ Other:

## Appendices

### General perception of the GCC 2010 WITHOUT alterations favouring a specific party \*

	Employer	Neutral	Contractor	N/A
Payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Latent defect liabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope changes/Variation orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality assurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance/Guarantees/Performance securities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Claims and disputes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk allocation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delays and time extensions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### General perception of the GCC 2010 WITH alterations favouring a specific party \*

	Employer	Neutral	Contractor	N/A
Payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Latent defect liabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope changes/Variation orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality assurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance/Guarantees/Performance securities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Claims and disputes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk allocation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delays and time extensions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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## Appendices

### 10.1.7 OPEN FEEDBACK PAGE

Survey on procurement documents in the built environment

Edit this form

\* Required

Page 5 of 5 - Open feedback


Would you be willing to make yourself available for further correspondence in the form of an interview and/or telephonic discussion? \*


☐ Yes

☐ No

Remarks, suggestions or concerns regarding procurement documents in general?

Remarks, suggestions or concerns regarding the GCC 2010 and/or GCC 2004?


 Universiteit Stellenbosch University



Suggestions or remarks regarding the format of the survey?

« Back

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## Appendices

### 10.1.8 OPTIONAL ADDITIONAL PARTICIPATION

[Edit this form](#)

## Survey on procurement documents in the built environment

**\* Required**

### Thank you for your willingness for further contribution toward this study

Please enter the following details below. All details will be treated confidentially. I will contact respondents individually to find a suitable time and date for a discussion.

**Name and Surname: \***

This is a required question

**Email address: \***

**Preferred method(s) of interview/correspondence: \***

☐ In person

☐ Skype


☐ Telephone

☐ Email

☐ Other:

Never submit passwords through Google Forms.

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## Appendices

## 10.2 APPENDIX B: CLAUSE-BY-CLAUSE ANALYSIS

To aid the user clauses in the GCC 2010 that are also found in the GCC 2004 are shown in the table of contents of the GCC 2010. The related clause number of the GCC 2004 is shown in brackets behind the table entry. New clauses are indicated as “(new)”.

### 10.2.1 HEADING 1: GENERAL

The first heading in the GCC 2010 contains three sub-headings: Definitions, Interpretations and General provisions. The GCC 2004 equivalent of the first heading is DEFINITIONS, INTERPRETATIONS, AND GENERAL PROVISIONS.

Eleven clauses are grouped under the GENERAL heading.

#### 10.2.1.1 DEFINITIONS

The GCC 2010 has thirty four definitions, expanding from the twenty four found in the GCC 2004.

New definitions added to the GCC 2010 are:

- Certificate of Practical Completion
- Contract Sum
- Day
- Final Approval Certificate
- Fixed Price Contract
- Form of Offer and Acceptance
- General Items
- Plant
- Pricing Strategy
- Re-measurement Contract
- Site Information

The definition for “Cost” found in the GCC 2004 was removed from the GCC 2010.

## Appendices

### 10.2.1.2 INTERPRETATIONS

Interpretations groups “Delivery Notices”, “Extent of indemnification”, “Authority of representatives”, “Single and plural, masculine and feminine” and “Marginal notes or headings” (clauses 1.2, 1.5, 1.7, 1.8 and 1.9) of the GCC 2004 under one sub-heading.

The wording of the clause on delivery of notices was somewhat simplified by removing an explanation for the word “communication”. The remaining clauses were not altered in any way.

### 10.2.1.3 GENERAL PROVISIONS

The GCC 2004 clauses “Concessions not to constitute waivers” and “Governing law” from Heading 1 and “Supplementary agreement” as well as “Contractor’s copyright” clause numbers 36.4 and 9.1 respectively. A new clause “Language” was also added.

All existing clauses remained unchanged, with the exception of the “Supplementary agreement” clause, which underwent minor wording changes. The meaning of the clause remained unchanged.

The new “Language” clause defines that the language of written communications shall be English, unless the Contract Data states otherwise.



## Appendices

### 10.2.2 HEADING 2: BASIS OF CONTRACT

The BASIS OF CONTRACT has five sub-headings that group three headings found in the GCC 2004 and there are two new sub-headings with new clauses. The number of clauses under the heading totals eleven.

The new sub-headings are: “Available data and information” and “Technical data”. The headings from the GCC 2004 are “Adverse physical conditions”, “Ambiguity in documents” renamed as “Ambiguity or discrepancy” and “Assignment”.

The clauses under the “BASIS OF CONTRACT” heading in the GCC 2004 were moved to a new heading, “CONTRACTOR’S GENERAL OBLIGATIONS”, which is discussed later in this chapter.

#### 10.2.2.1 AVAILABLE DATA AND INFORMATION

The sub-heading, “Available data and information”, contains three clauses that specifically state that the Employer shall present all available information relevant to the Works. Furthermore, it states that the Contractor shall be deemed to have inspected the Site and that all attainable information that may have bearing on the Works shall have been obtained.

#### 10.2.2.2 ADVERSE PHYSICAL CONDITIONS

Apart from referred clause numbers all clauses under this sub-heading remain unchanged.

#### 10.2.2.3 TECHNICAL DATA

The “Technical data” clause states that the Contractor’s tender is based on the technical data provided in the Contract. If delays are caused or costs are incurred due to circumstances being different from the technical data, the Contractor shall be entitled to make a claim.

#### 10.2.2.4 AMBIGUITY OR DISCREPANCY

Apart from referred clause numbers all clauses under this sub-heading remain unchanged.

#### 10.2.2.5 ASSIGNMENT

There was no changes made to the clause.

## Appendices

### 10.2.3 HEADING 3: ENGINEER

The ENIGINEER heading keeps all of the clauses from the GCC 2004 and groups them in “Functions of the Engineer” and “Engineers Representative” sub-headings. In addition to the nine clauses in the GCC 2004 there is one new clause, bringing the total to ten.

#### 10.2.3.1 FUNCTIONS OF THE ENGINEER

Clauses 2.1 to 2.3 in the GCC 2004 pertaining to the Engineer all remain unchanged. A fourth clause, “Employer’s agent for health and safety” was added in to represent the Employer in issues regarding the Occupational Health and Safety Act.

#### 10.2.3.2 ENGINEER’S REPRESENTATIVE

A few minor wording changes were made to the “Authority of Engineer’s Representative” without changing the meaning, the rest were remained unchanged. All six clauses thus remained fundamentally the same as in the GCC 2004.

## Appendices

### 10.2.4 HEADING 4: CONTACTOR'S GENERAL OBLIGATIONS

Ten of the headings in GCC 2004 are combined in the CONTRACTOR'S GENERAL OBLIGATIONS heading and uses new sub-headings to group related clauses. The GCC 2004 BASIS OF CONTRACT clauses were divided into three sub-headings.

There are twenty nine clauses divided into the twelve sub-headings. The highest number of clauses under a single sub-heading is six.

#### 10.2.4.1 EXTENT OF OBLIGATIONS AND LIABILITY

The first two clauses of the GCC 2004 BASIS OF CONTRACT, "Extent of Contractor's obligations" and "Contractor's liability for own design errors", were grouped under the Extent of obligations and liability sub-heading without any changes.

#### 10.2.4.2 ENGINEER'S INSTRUCTIONS

Both the clauses "Works to comply to Engineer's instructions" and Instructions from Engineer only" under the sub-heading were taken from the BASIS OF CONTRACT in the GCC 2004 without changes.

#### 10.2.4.3 LEGAL PROVISIONS

The final clause in the GCC 2004 BASIS OF CONTRACT related to "Compliance with all applicable laws" and was grouped with clause 35.8 "Legal provisions" named "Proof of good standing" in the GCC 2010 under the sub-heading. The first clause underwent minor wording changes, but kept the meaning while the second clause remained unchanged.

#### 10.2.4.4 SUBCONTRACTING

The second heading in the GCC 2004 that falls under the new CONTRACTOR'S GENERAL OBLIGATIONS heading is Subcontracting.

Three of the six clauses, "Subcontracting part of Contract", "No consent required" and "Payment to subcontractor selected by Employer and Contractor", were discarded in the GCC 2010. Clause 6.4 "Contractor's liability unaffected" was divided into two separate clauses in the GCC 2010 as "Liability for subcontractors" and "Contractor's liability unaffected by selection of subcontractors".

Both "Subcontracting whole Contract" and "Selection of subcontractors in consultation with Employer" clauses remained unchanged in the GCC 2010.

## Appendices

Two new clauses, “Assignment in case of termination” and “Assignment of benefit of subcontractors” were added to clarify the contractual relationship between the Employer, Contractor and subcontractor in the event of Contract termination by the Employer and the successful performance of the Contract by the Contractor.

### 10.2.4.5 NOTICES AND FEES

The four clauses, “Giving of notices and payment of fees”, “Employer’s responsibility for approval”, “Contractor’s responsibility for consents” and “Contractor to be compensated” are identical in the GCC 2004 and GCC 2010.

### 10.2.4.6 PATENT RIGHTS

Both clauses under the Patent rights sub-heading are reproduced without any changes.

### 10.2.4.7 FOSSILS

There is only one clause under the sub-heading and the clause remains unchanged in the GCC 2010.

### 10.2.4.8 FACILITIES FOR OTHERS

Facilities for others contains two clauses of which the wording remains unchanged. However, the names for both clauses have changed. The GCC 2004 named them “Opportunities afforded to other persons” and “Additional payment for providing facilities”, which are respectively named “Facilities for others” and “Additional compensation for providing facilities” in the GCC 2010.

### 10.2.4.9 CONSTRUCTION EQUIPMENT

There is a single clause under the sub-heading, “Prohibition on removal of Construction Equipment” that remains unchanged. The GCC 2010 sub-heading is slightly different from the GCC 2004 heading, REMOVAL OF CONSTRUCTION EQUIPMENT.

### 10.2.4.10 CONTRACTOR’S EMPLOYEES

A few minor wording changes are made to make the meaning of both clauses more clear. The meaning, however remains unchanged.

## Appendices

### 10.2.4.11 COMPETENT EMPLOYEES

The GCC 2004 has only a single clause with two paragraphs. The two paragraphs are divided into two clauses in the GCC 2010. The wording of the first clause has minor wording change while the second clause has no changes.

The name of the first clause remains “Competent employees” and the second clause is named “Removal of incompetent employees”.

### 10.2.4.12 CONTRACTOR’S SUPERINTENDENCE

The first and third clauses, “Contractor’s superintendence” and “Site Agent to receive instructions” are used without any changes, while the second clause, “Contractor’s Site Agent” underwent a few minor wording changes. The meaning of the second clause remains unchanged.

## Appendices

### 10.2.5 HEADING 5: TIME AND RELATED MATTERS

Headings in the GCC 2004 related to time are grouped under a single heading in the GCC 2010. A total of fourteen headings are grouped, seven of which are expanded. A single clause from one of the heading is removed from its original grouping and placed under a different sub-heading in the GCC 2010. Two new sub-headings with new clauses are also added, giving a total of sixteen sub-headings with forty seven clauses.

#### 10.2.5.1 TIME CALCULATIONS

The “Time calculations” clause is a new clause that is added to bring clarity on how number of days a task’s time-span is calculated.

#### 10.2.5.2 COMMENCEMENT OF THE CONTRACT

The second clause states that the Contract shall commence on the Commencement Date, as defined in the under the GENERAL heading.

#### 10.2.5.3 COMMENCEMENT OF THE WORKS

The GCC 2004 has only a single clause for commencement of Works that states the Contractor shall commence execution of the Works within a predetermined number of days stipulated in the Contract Data.

A fundamental change is made in the GCC 2010 in that the Contractor shall commence execution of the Works upon instruction from the Engineer. This instruction is subject to the submission of required documentation by the Contractor and the approval of the documentation by the Engineer.

The Contract Data stipulates the number of days within which the Contractor must submit the documents.

A second clause is added that gives the Employer the right to terminate the Contract if the Contractor fails to submit the documentation or the documentation is found to be unacceptable.

The third clause “Time to instruct commencement of the Works” states that the Engineer has seven days to provide the instruction to the Contractor to commence execution or to resubmit documentation. In the event that the Engineer fails to provide an instruction, the commencement of the Works shall be deemed to be on the expiry of the seven days. This clause removes uncertainty that the Contractor may have if no instruction is received.

## Appendices

### 10.2.5.4 ACCESS TO THE SITE

In light of the changes made to the Commence of the Works clauses, the “Access to and possession of Site” clause is altered accordingly so that the Employer gives the Contractor right of access to the Site upon the Engineers instruction.

A new clause, “Access not exclusive”, is added to clarify that the access to and possession of the Site is not exclusive to the Contractor.

The “Delays in giving possession” clause has been changed to remove the right of the Engineer to extend the time limit that the Contractor has to claim time extension or compensation.

### 10.2.5.5 TIME FOR PRACTICAL COMPLETION

The clause “Time for completion” is taken from the EXTENSION OF TIME FOR COMPLETION heading and placed under a separate sub-heading.

Minor wording changes are made, most significant being that the whole of the Works shall be completed within the Due Completion Date and no longer within the time calculated from the Commencement Date.

### 10.2.5.6 PROGRAMME

The programme of Works is included in the documentation that the Contractor has to submit to the Engineer for approval prior to commencing execution of the Works. This consequently results in the clauses relating to the programme in the GCC 2010 being significantly different from the GCC 2004.

The first change is that the first clause in the GCC 2004 under the PROGRAMME OF THE WORKS heading is discarded. This is because in the GCC 2010 the programme is part of the documentation that needs to be submitted before commencement of the Works.

The first clause in the GCC 2010 under the Programme sub-heading is “Programme of Works” clause that states the abovementioned submission requirement. Furthermore, the clause states that in the event that the approved programme no longer reflects that the actual progress will meet the Due Completion date, the Contractor is obligated to provide an adjusted programme to the Engineer.

## Appendices

The second clause, “Contents of the programme” prescribes in detail what the programme is required to contain. The clause is changed to provide increased clarity on what is required by the Engineer than equivalent clause in the GCC 2004.

“Approval of the programme” states that the Engineer has seven days to approve or instruct amendments to the programme. After the seven days, if no instruction or approval has been given, the programme is deemed to be approved.

The fourth clause in the GCC 2004 is expanded in the GCC 2010 to clarify review and adjustment of the programme.

The closing clause, “Approval means no relief of Contractor’s responsibilities” remains unchanged from the GCC 2004.

### 10.2.5.7 PROGRESS OF THE WORKS

The first clause remains fundamentally unchanged, except for minor wording changes to accommodate the changes in the aforementioned sections. A paragraph is added stating that no instruction given by the Engineer to improve the Contractor’s rate of progress to reduce the backlog will qualify for additional compensation. This paragraph negates the need for the third clause in the GCC 2004.

The clause pertaining to night work remains unchanged from the GCC 2004.

The clause regarding acceleration of the rate of progress is significantly changed to allow for payment to the Contractor for work done that is required to achieve an earlier Practical Completion than the current Due Completion Date. If the payment conditions are agreed upon by the Employer and the Contractor, the Due Completion Date is revised.

The restriction on working Sundays was removed in the first clause, “Non-working times”. The second paragraph of the GCC 2004 clause was rewritten as a separate clause in the GCC 2010, emphasizing the importance of the provision of written notice to the Engineer by the Contractor whenever the Contractor proposes to carry out work during non-working times.



## Appendices

### 10.2.5.8 INSTRUCTIONS

The first clause, “Drawings and instructions”, as well as the third clause “Contractor to give notice timeously” are reused without any changes, while clauses “Further drawings and instructions”, “Documents to be provided timeously” and “Contractor to give effect to drawings, etc.” underwent minor wording changes to provide better clarity without changing the meaning of the clause.

The clause making provision for consequences in the event the Engineer fails to comply to the abovementioned clauses was expanded to clarify the timeframe that the Contractor has to make a claim and also removes the possibility of this time being extended by the Engineer.

The final clause regarding designs prepared by the Contractor was altered in the sense that the Contractor is no longer required to submit the relevant documents in triplicate. Other than the aforementioned change, the clause remains fundamentally the same.

### 10.2.5.9 DELAYS ATTRIBUTABLE TO THE EMPLOYER

The sub-heading contains a single clause, the wording of which was changed to reduce the possible ambiguity that was present in the GCC 2004. The possibility of extension of time for the Contractor to make a claim was removed, while more clarity was given as to the commencement of this time.

### 10.2.5.10 SUSPENSION OF THE WORKS

The SUSPENSION OF THE WORKS heading in the GCC 2004 was expanded in the GCC 2010 under the same sub-heading.

An additional requirement is added to the “Suspension of the works” clause, in that the Engineer is required to state the cause of the suspension in the written order to the Contractor. The rest of the clause’s provision remains unchanged.

The paragraph on claims as a consequence of suspension in the GCC 2004 was included as a separate clause in the GCC 2010. The wording was also changed to clarify the conditions which restricts the Contractor to make a claim.

Minor wording changes were made to the “Suspension lasting more than 84 days” clause, but the meaning remains the same.

## Appendices

### 10.2.5.11 EXTENSION OF TIME FOR PRACTICAL COMPLETION

The GCC 2004 heading EXTENSION OF TIME FOR COMPLETION is mainly grouped under this sub-heading, except for the first clause, which was placed under a new sub-heading, “Time for Practical Completion” discussed earlier in this section. One new clause “Acceleration in stead of extension of time” is added.

Due to the addition of the new definition “Practical Completion” the “Extension of time for Practical Completion” was rewritten accordingly to provide increased clarity.

The second clause, “Some reasons for extension of time” remains unchanged, except for the removal of the third sub-clause, regarding delay attributable to the Employer. This matter is addressed in the clause “Delays attributable to the Employer”.

“Relevant adjustments to General Items” was expanded to include provision for special non-working days.

The new clause provides the Engineer with the opportunity to request the rate of progress be accelerated to achieve Practical Completion without an extension of time. The cost for payment of the acceleration would then be done according to the “Value of variations” clause.

### 10.2.5.12 PENALTY FOR DELAY

The first clause remains unchanged and provision for non-working days is added. The second clause remains exactly the same as in the GCC 2004.

### 10.2.5.13 COMPLETION

All the clauses in the GCC 2004 are reused with the same meaning, but with minor wording changes. A new clause is added that clarifies the consequences in the event that the Employer occupies the Works before the Due Completion Date.

### 10.2.5.14 CLEARANCE OF SITE

The first clause of the GCC 2004 is reused completely unchanged. The second clause is discarded, removing the possibility of the Employer incurring costs that the Contractor would be liable for without the Contractors consent or knowledge.

## Appendices

### 10.2.5.15 APPROVAL

One change was made to the first clause in the third paragraph. The change was that the release of Retention Money Guarantee provision is removed, as the clause pertaining to the Retention Money Guarantee present in the GCC 2004 is not used in the GCC 2010.

The second clause is reused without any change.

The “Latent defect liability” clause is changed in that the latent defects liability period is changed from the stated ten years in the GCC 2004 to the time period stated in the Contract Data in the GCC 2010.

## Appendices

### 10.2.6 HEADING 6: PAYMENT AND RELATED MATTERS

There are forty two clauses concerning payments, securities, variations and price adjustments are grouped into eleven sub-headings. Ten of the headings are existing headings under the GCC 2004.

The “Security” and “Value of variations” headings are expanded with additional clauses and the “Dayworks” clause found under the VALUATIONS OF VARIATIONS heading in the GCC 2004 is placed under a separate sub-heading in the GCC 2010.

#### 10.2.6.1 PAYMENT TO CONTRACTOR

The clause is reused without any alterations.

#### 10.2.6.2 SECURITY

The “Security” sub-heading is substantially different for the equivalent heading in the GCC 2004, GUARANTEE. The Engineer’s right to withhold payment certificates has been revoked, as well as the condition that the guarantor is subject to the Employer’s approval. The pro forma is set up in such a way that both the Employer and Contractor must be in agreement about the guarantor.

The first clause, “Delivery of security”, states that the security, as selected in the Contract Data, is to be delivered to the engineer as part of the documentation that is to be submitted for approval before the commencement of the Works.

In the event that the Contractor fails to select or provide the security the second clause provides a default condition that the Contractor shall then have selected a security of ten per cent retention of the value of the Works. This condition is also applicable if the performance guarantee differs substantially from what is stipulated in the pro forma performance guarantee.

The “Validity of performance guarantee” clause states that the Contractor is responsible for keeping the guarantee valid at least fourteen days after the date that the Contractor is entitled to receive the Certificate of Completion of the Works.

## Appendices

### 10.2.6.3 VARIATIONS

The first clause, defining the authority of the Engineer is reused without any changes.

A paragraph stating that if the Engineer gives a Variation Order orally the Contractor must comply with the order, has been removed from the second clause. Furthermore the time limit in which a Contractor must confirm, in writing, an oral or written order that is contended to be a Variation Order has been reduced from fourteen days to seven days.

With the exception of specifying which Pricing Strategy the clause is relevant for, the “Changes in quantities” clause remains unchanged.

The “Supplementary agreements” clause was moved to the GENERAL heading in the GCC 2010.

### 10.2.6.4 VALUE OF VARIATIONS

The GCC 2004 had two extensive clauses under the VALUATION OF VARIATIONS heading regarding the valuation of variations as well as day works. Each clause had four and six sub-clauses respectively. The GCC 2010 separates the two clauses into different sub-headings and expands the “Value of variations” sub-heading with two new clauses.

The principles according to which the Engineer calculates the value of Variation Order remain fundamentally the same, however some wording changes are made to bring increased clarity as to the duties of the Engineer.

The first additional clause provides for the delivery and application of the valuation. The Engineer is required to deliver the valuation to the Contractor and the Employer within twenty eight days after issuing the Variation Order. This valuation must then be applied in payment certificates. The Contractor retains his right to dispute the valuation if deemed unacceptable.

The final clause relates to the Contractor’s right to submit a claim, if the Engineer does not deliver and apply the valuation within the specified timeframe.

## Appendices

### 10.2.6.5 DAYWORKS

As mentioned in section 10.2.6.4 the “Dayworks” clause in the GCC 2004 is placed under a separate sub-heading in the GCC2010.

The majority of all clauses remain the same, with some minor wording changes to make the clauses more clear. The sub-clause that makes provision for the absence of a daywork schedule is elaborated to include items that are not included in the daywork schedule.

A one day timeframe is added for the Engineer to return documentation after the execution of the work.

### 10.2.6.6 PROVISIONAL SUMS AND PRIME COST SUMS

Apart from the referring to the Pricing Data in the GCC 2010 compared to Bill of Quantities in the GCC 2004, the clause is completely unchanged.

### 10.2.6.7 MEASUREMENT OF THE WORKS

The clauses are all completely unchanged, except for a few minor wording changes. The meaning of all clauses remain the same.

### 10.2.6.8 ADJUSTMENT IN RATES AND/OR PRICES

No changes are present in any of the clauses under the sub-heading.

### 10.2.6.9 VESTING OF PLANT AND MATERIALS

All of the clauses remain unchanged, but the application of the clauses are extended in the GCC 2010 to include Plant as opposed to only being applicable to materials in the GCC 2004.

### 10.2.6.10 PAYMENTS

The first clause, “Interim payments” remains mostly unchanged. The first change clarifies that the Engineer may no longer use his discretion to determine the amount paid for Temporary Works. The amount should be based on actual costs incurred for the Temporary Works.

The second change is made to the third sub-clause. Amounts are stated to be due to the Contractor or the Employer, as opposed to only being due to the Contractor in the GCC 2004.

## Appendices

An additional sub-clause is added that makes provision for sales tax or value added tax that the Employer is required to pay the Contractor by law.

The wording of the second clause undergoes slight changes to increase the clarity of the meaning of the clause.

The third clause remains unchanged, while the fourth clause is expanded to make provision for any dissatisfaction the Contractor may have in terms of a payment certificate, as well as stating that any payment made by the Employer is subject to the Contractor submitting a tax invoice if required by law.

“Payment of retention money” remains fundamentally similar to the “Time of payment of retention” in the GCC 2004, but the first sub-clause is refined to remove the influence of the Engineer’s opinion.

The GCC 2004 clause, “Guarantee in lieu of retention” is discarded as the GCC 2010 does not require a Retention Money Guarantee. Retention monies are dealt with in the “Payment of retention money” clause.

The second sub-clause of the “Set-off and delayed payments” clause is rewritten to clarify that the interest on delayed payment shall be simple interest at the prime overdraft rate charged by the Contractor’s Bank and that this shall have no effect on the Contractor’s other contractual or legal rights.

The final three clauses only underwent minor wording changes that does not alter their meaning. New clauses that are related to the clauses at hand are additionally referred to.

### 10.2.6.11 VARIATIONS EXCEEDING 15 PER CENT

All of the clauses under the sub-heading remain unchanged from the GCC 2004.

## Appendices

### 10.2.7 HEADING 7: QUALITY AND RELATED MATTERS

The QUALITY AND RELATED MATTERS heading contains nine sub-headings and twenty two clauses. Seven of the GCC 2004 headings are grouped, of which the MATERIALS, WORKMANSHIP AND CONSTRUCTION EQUIPMENT heading is divided into three sub-headings in the GCC 2010. These sub-headings are “Quality of Construction Equipment”, “Quality of Plant, workmanship and materials” and “Samples and testing”.

There are four new clauses added to the existing clauses taken from the GCC 2004. These clauses are found under “Examination of the Works” and “Defective Plant, materials and work”.

#### 10.2.7.1 QUALITY OF CONSTRUCTION EQUIPMENT

The wording of the clause was significantly changed in the sense that the meaning is simplified to be easily understood.

#### 10.2.7.2 QUALITY OF PLANT, WORKMANSHIP AND MATERIALS

The wording of the clause was altered to extend the application of the clause to Plant. The meaning, however, remains the same.

#### 10.2.7.3 ACCESS TO THE WORKS

The ambiguity of “reasonable times” found in the GCC 2004 was removed by changing the wording to “during working hours” in the GCC 2010. Furthermore, the clause was made applicable to Plant.

#### 10.2.7.4 SAMPLES AND TESTING

The remaining five clauses found under the GCC 2004 heading, MATERIALS, WORKMANSHIP AND CONSTRUCTION EQUIPMENT is grouped under the “Samples and testing” sub-heading in the GCC 2010. The clauses remain fundamentally the same, with wording changes providing for the inclusion of Plant where necessary.

The “Tests” clause was expanded to include possible specifications set out in the Scope of Works.



## Appendices

### 10.2.7.5 EXAMINATION OF THE WORKS

No changes were made to the first clause pertaining to the covering up of Works or excavation.

A new clause is added that requires any Plant to pass testing and be authorised by the Engineer before being allowed on Site.

The third clause is fundamentally the same as the equivalent clause in the GCC 2004, with the wording being changed to accommodate for Plant and clarifying that any delay caused by the Engineer entitles the Contractor to make a claim for an extension of time, additional compensation or both.

The second new clause makes provision for any delay caused by the Employer in the delivery of Plant.

The final clause under the sub-heading is reused without any changes.

### 10.2.7.6 DEFECTIVE PLANT, MATERIALS AND WORK

This sub-heading contains the two other new clauses. The first of which makes provision for the retesting of Plant that failed to pass tests as required in the “Samples and tests” sub-heading.

The second new clause states the consequences of Plant that fails the retesting procedure. Allowance is made for the Contractor to make good Plant that has failed to be retested again. A second option is that the Employer may give written consent to accept the Plant at a reduced price and thirdly the Plant can be rejected if not in accordance with the Contract.

The third clause under the sub-heading, that is the first existing clause from the GCC 2004 is expanded to specify that a timeframe must be provided in an order regarding the removal of improper work and materials.

Apart from referring to the new additional clauses, the final clause remains unchanged.

### 10.2.7.7 SEARCH FOR DEFECTS

The clause retains its meaning, but undergoes minor wording changes to ease reading of the clause.

## Appendices

### 10.2.7.8 DEFECTS

The first clause under the DEFECTS heading in the GCC 2004 is moved under the DEFINITIONS heading in the GCC 2010.

The “Making good of defects in Defects Liability Period” clause is reused without any alterations.

The second clause has several changes made to the sub-clauses. The first being that the opinion of the Engineer is no longer the determining factor in which party is to carry the cost of remedial work. The second change is that the valuation of remedial work for which the Contractor is entitled to be compensated for is done according to the “Value of variations” clause. This departs from the condition in the GCC 2004 that states the value shall be a “fair value as agreed between the Contractor and Engineer” and also removes the right of the Engineer to determine the value if no agreement can be reached.

The final clause is reused without any changes.

### 10.2.7.9 URGENT REMEDIAL WORK

The clause is reused without any changes.

## Appendices

### 10.2.8 HEADING 8: RISKS AND RELATED MATTERS

The RISKS AND RELATED MATTERS heading groups six headings of the GCC 2004. The first sub-heading groups the PROTECTION OF THE WORKS and POLLUTION AND EXCESSIVE TRAFFIC headings and further splits the clause found under the first heading in two.

The CARE OF THE WORKS heading is also divided into two sub-headings named, “Care of the Works” and “Excepted risks”. Each containing one of the two clauses previously combined.

#### 10.2.8.1 PROTECTION OF THE WORKS

This sub-heading combines two of the headings in the GCC 2004. The “Protection of the Works” clause is reused as in the GCC 2004 with an addition of the inclusion of the South African Road Traffic Signs Manual.

The second paragraph is omitted as it could be seen as a duplication of the second clause.

The final paragraph of the abovementioned GCC 2004 clause is used as a separate clause, “Prices for protection of the Works”, in the GCC 2010 and the wording is changed slightly to increase clarity of the meaning.

The second clause is taken from the POLLUTION AND EXCESSIVE TRAFFIC heading in the GCC 2004 and is reused without any changes, as is the fourth clause, “Indemnity by the Contractor”.

The third clause has minor wording changes and the statement making the Contractor liable for the subcontractor’s transport arrangements is removed.

#### 10.2.8.2 CARE OF THE WORKS

The first clause of the sub-heading is reused without changes, with the addition of Plant to the extent of application.

The second clause is similarly expanded to allow the clause to additionally relate to Plant. The second sub-clause is also expanded to specify that the cost is to be valued in accordance to the “Value of variations” clause.

#### 10.2.8.3 EXCEPTED RISKS

All of the excepted risks stated in the GCC 2004 are reused in the GCC 2010.

## Appendices

### 10.2.8.4 INDEMNIFICATIONS

Both clauses under the sub-heading are used without alterations.

### 10.2.8.5 REPORTING ACCIDENTS

No changes were made to the clause for use in the GCC 2010.

### 10.2.8.6 INSURANCES

A general change is made throughout all relevant clauses under the sub-heading in the sense that the insurances are additionally applied to Plant where applicable. It is also made clear that the insurances are a part of the documentation that is to be submitted to the Engineer for approval before execution of the Works commences.

For the first clause, the wording of the first sub-clause is changed to clarify the meaning of the clause and specifies the duration for which the Contractor is responsible. The list of items used to calculate the insured sum with remains unchanged. A single sub-clause is added that requires the Contractor to effect and maintain insurance where the execution of the Works involves support structures to adjoining properties or any structures that are altered or added to. The remaining sub-clauses are used without changes.

With the exception of the final clause, “Legal provisions”, that is moved under the CONTRACTOR’S GENERAL OBLIGATIONS heading, the remaining clauses are used without any changes.

## Appendices

### 10.2.9 HEADING 9: TERMINATION OF CONTRACT

There are three sub-headings under the TERMINATION OF CONTRACT heading grouping thirteen clauses. Two of the thirteen clauses are new additions, the other eleven are reused from the GCC 2004.

#### 10.2.9.1 TERMINATION OF CONTRACT

The first change in the GCC 2010 is that the clause refers to Contract termination rather than cancellation as in the GCC 2004.

The first clause remains unchanged from the GCC 2004. The second clause has minor wording changes to clarify the meaning.

A new clause, “Existing structure substantially destroyed: is added to make for provision for termination by the Employer, should an existing structure be substantially destroyed that was intended to be altered.

A timeframe addition is made to the “Increased costs” clause that requires the Contractor to notify the Engineer within fourteen days of becoming aware of any increase in costs.

The remaining clauses are reused with minor wording changes and inclusions of references to the new clause and the application to Plant.

#### 10.2.9.2 TERMINATION BY EMPLOYER

A restructure of the first clause is done in order to make the understanding of the meaning more clear. A sub-clause is added that requires the Engineer to consult with the Contractor and the Employer before making a ruling.

The list of conditions that entitle the Employer to terminate the contract has undergone a few changes. The two conditions in the GCC 2004 concerning the Contractor’s subletting all or part of the Contract is removed. With the exception of the first condition, the remaining conditions have minor wording changes to reduce ambiguity and increase specific details.

An additional clause, “Notice to trustee/liquidator”, is added that states any notice or order that shall be delivered to the trustee or liquidator in the event the Contractor is insolvent or liquidated.

#### 10.2.9.3 TERMINATION BY CONTRACTOR

All of the clauses under the “Termination by Contractor” are used without changes.

## Appendices

### 10.2.10 HEADING 10: CLAIMS AND DISPUTES

The CLAIMS AND DISPUTES heading has eleven sub-headings and thirty clauses. Eleven of the thirty clauses are new clauses. Three headings of the GCC 2004 are grouped into sub-headings under the heading in the GCC 2010 and three new sub-headings are added. The SETTLEMENT OF DISPUTES heading in the GCC 2004 is divided into six sub-headings.

#### 10.2.10.1 CONTRACTOR'S CLAIM

The first change made to the first clause is that the condition that the Contractor is to "Deliver to the Engineer in writing such additional information as the Engineer shall, in writing, reasonably require" is removed. Furthermore, wording changes are made to clarify possible ambiguity regarding what is required of the Contractor.

The second clause providing for extension of the period for claiming beyond twenty eight days is expanded to state that work done before the Contractor has given notice shall be compensated for according to the rates and/or prices set out in the Pricing Data.

The remaining clauses, "Records of facts and circumstances for claim", "Contractor's failure to comply with notice period" and "Engineer's ruling on Contractor's claim" are reused with minor wording changes, but without any changes to their meaning.

#### 10.2.10.2 DISSATISFACTION CLAIM

The NOTICE OF DISAGREEMENT heading in the GCC 2004 is renamed as the "Dissatisfaction claim" sub-heading. The existing clauses are changed and one new clause is added.

The first clause is changed to state that the Contractor as well as the Employer has the right to deliver a written satisfaction claim to the Engineer. The "Engineer's ruling on dissatisfaction" clause is expanded to make provision for any amount in favour of Contractor or Employer to be included in the next payment certificate.

A clause is added that states that if the Contractor or the Employer fails to submit a claim within twenty eight days after the cause of the dissatisfaction, they forego the right to claim.

#### 10.2.10.3 DISPUTE NOTICE

The first clause in the GCC 2010 is rewritten to incorporate the first and second sub-clauses of the GCC 2004. The wording and structure is changed to make it simplify the meaning.

## Appendices

The fourth sub-clause of the GCC 2004 is changed to immediately refer any dispute to adjudication, but adds provision for amicable settlement.

The “Ruling in full force” clause is reused with minor wording changes.

### 10.2.10.4 AMICABLE SETTLEMENT

Mediation is removed from the GCC 2010 and replaced with “Amicable settlement”. Amicable settlement allows the Contractor and Employer to settle any claim or resolve any dispute amicably with the help of a neutral third party. The technique that is followed may furthermore be done in any manner as agreed upon by both parties.

Provision is made that if a party rejects the invitation to amicable settlement or fails to respond with fourteen days, the matter is referred to adjudication. Adjudication is also the next step if parties are not in agreement after proceedings. Any settlement is only deemed as binding when both parties are in agreement.

As with mediation in the GCC 2004, only settlements or decisions that both parties are in agreement on are allowed to be referred to in subsequent adjudication, arbitration or court proceedings.

The apparent aim of the inclusion of the clause is to reduce costs of settling claims and resolution of disputes, as well as reducing the time spent in reaching a possible settlement. The parties also given more options as to the manner in which the settlement is reached.

### 10.2.10.5 ADJUDICATION

The GCC 2010 clauses regarding adjudication are significantly different from the clauses in the GCC 2004.

Provision is made for the appointment of the members of the Adjudication Board, if the Contract Data states that disputes shall be resolved by a standing Adjudication Board. The members must be appointed by the Employer and the Contractor within fifty six days of the Commencement Date. If there is no provision for a standing Adjudication Board, disputes are referred to ad-hoc adjudication.

The final clause states that the proceedings shall be conducted in accordance with the Adjudication Board Rules.

## Appendices

### 10.2.10.6 DISAGREEMENT WITH ADJUDICATION BOARD'S DECISION

The second new sub-heading, "Disagreement with Adjudication Board's decision", provides for the Contractor or Employer to be entitled to disagree with any decision made by the Adjudication Board and refer the matter to arbitration or court.

If either party disagrees with the decision, written notice must be given to the other party after twenty eight days, but before fifty six days. After fifty six days the parties forego the right to refer the matter to arbitration or court. If a party fails to comply with the decision, the other party may refer the dispute to arbitration or court.

In the event that the Adjudication Board fails to give a decision within the allowed time, either party has the right to refer the matter to arbitration or court. If notice is not given within twenty eight days after the date that a decision should have been given, the Engineer's ruling or any agreed settlement shall be deemed as final and binding.

### 10.2.10.7 ARBITRATION

The wording of the first clause is simplified and the timeframe removed. The second and third clauses are reused without any changes.

### 10.2.10.8 COURT PROCEEDINGS

The wording of the clause is simplified, but the meaning of the clause remains the same.

### 10.2.10.9 APPOINTMENT

"Appointment of dispute resolving persons" is the final new clause under the CLAIMS AND DISPUTES heading in the GCC 2010. The clause states the manner in which the dispute resolving persons are selected and if agreement is not reached between the Contractor and the Employer, on either party's application, the President of SAICE or a person nominated by the President shall nominate the relevant persons.

### 10.2.10.10 COMMON PROVISIONS

All the clauses under the "Common provision" sub-heading is reused with minor wording changes, without changing the meaning of the individual clauses.

### 10.2.10.11 CONTINUING VALIDITY

The "Continuing validity" clause is reused without any changes.