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The relationship between choice of construction contract and compliance with Health & Safety legislation: a perceptive study of Jonhannesburg-based construction contract management professionals

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The relationship between choice of construction contract and compliance with Health & Safety legislation: A perceptive study of Johannesburg-based construction contract management professionals.

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science (Building) in Construction Project Management.

Johannesburg. 2021

Declaration

I declare that this research report is my own, unaided work. It is submitted in partial fulfilment of the degree of Master of Science in the field of Construction Project Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.

Signature of Candidate:



(Signature of Candidate)
06th day of December 2021.

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Date: 06 December 2021

Abstract

Construction health and safety performance in South Africa continues to be poor, and the reduction of health and safety incidents in the industry continues to be elusive. Literature review indicates that one of the key contributors to the poor statistics is non-compliance with health and safety regulations.

According to literature review, the responsibility for management of health and safety, and for ensuring compliance with health and safety regulations is the responsibility of the construction client. Construction clients are, however, usually unable to deliver project objectives, and project priorities themselves and outsource to external service providers to deliver. This results in contractual relationships between the client and service providers. As such, the procurement strategy and choice of contract to be implemented is fundamental to ensuring that project objectives such as time, quality, cost and safety are met; and for ensuring ensure that all project activities are in compliance with all statutory requirements.

This study explores the relationship between choice of standard-form construction contracts and compliance with health and safety legislation. Insights were gleaned through questionnaire surveys as well as a review of literature.

The study shows that the choice of construction contract is not indicative of the client's efforts to ensure compliance with health and safety legislation. These findings highlight that there is scope for improvement of the health and safety provisions in the standard-form construction contracts, and that these need to be reinforced by being more descriptive on the obligations of both the client and the contractor, in order to ensure compliance with health and safety legislation, and thus improve health and safety performance on construction sites.

Dedication

To my family and friends who have supported me through this journey: Thank you for your love, support, and patience.

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- To Paul Rudzinske, my supervisor, thank you for your guidance in this learning experience.
- To all the built environment professionals who participated in the research.
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Table 1: Nomenclature

Abbreviation	Description
CIDB	Construction Industry Development Board
DoL	Department of Labour
FIDIC	Fédération Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers)
GCC	General Conditions of Contract
H&S	Health and Safety
JBCC (PBA)	Joint Building Contracts Committee (Principal Building Agreement)
NEC (ECC)	New Engineering Contract (Engineering and Construction Contract)
OHSACT	Occupational Health and Safety Act No 85 of 1993
SA	South Africa

Definition of key terms:

- Client: “Any person or organisation for whom construction work is being performed” (Republic of South Africa, 2014:p. 2). A construction client can be a private individual, private sector organisations or public sector organisations (Boyd & Chinyio, 2006)

- Client commitment to health and safety: The extent to which the client is involved in management of H&S (Musonda & Smallwood, 2008).

- Compliance with health and safety: “Orthodoxy of health and safety rules and regulations” (Arewa & Farrel, 2012:p. 425).

- Construction attorney: a person who practises construction law, providing legal advice in relation to construction, engineering and infrastructure projects. Construction lawyers have specialised knowledge and understanding of construction contracts, and any applicable legislation and regulations. Construction lawyers provide legal advice on front-end matters (this includes contract formation), as well as back-end matters (this includes dispute resolution and arbitration) (Reynolds, 2000) (Macintosh, 2019) (The Lawyer Portal, 2021)

- Construction contracts manager: a person who oversees implementation of the construction contract over the lifecycle of building, engineering and infrastructure projects to ensure that the deliverables and obligations as stipulated in the construction contract, are met (Gunduz & Elsherbeny, 2020) (Muhammad, et al., 2019)

- Construction work: “The construction, erection, maintenance, demolition or dismantling of or addition to a building or any similar structure” (Republic of South Africa, 2014:p. 3).

- Contractor: “An employer who performs construction works” (Republic of South Africa, 2014:p. 3).

- Hazard: “A source of or exposure to danger” (Republic of South Africa, 1993:p. 4).

- Health and Safety (H&S): “The protection of the bodies and minds of people from illness and physical injury resulting from the materials, processes or procedures used in the workplace” (Hughes & Ferret, 2011:p. 3).

- H&S legislation: The Occupational Health and Safety Act 85 of 1993 (OHSACT) and the Construction Regulation 2014.

- Regulation: “That which comes from legal effort made by the government and society, in order to reduce the probability of negative performance in terms of quality, health and safety by evaluating the consequences thereof” (Windapo, 2013:p. 68).

- Safety climate: “A set of attributes that can be perceived about particular work organizations and which may be induced by the policies and practises that organizations impose upon their workers” (Niskanen, 1994:p. 241).

- Safety culture: “The product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of an organization’s health and safety management” (Great Britain Advisory Committee on the Safety of Nuclear Installations, 1993:p. 23).

- Standard-form contract: “A contract between two parties that is published by an authoritative industry body with fixed terms and conditions which

are deemed to be agreed and not subject to further negotiation and amendment" (Watermeyer, 2012:p. 14).

Chapter 1: Introduction

1.1 Background to the study

Construction health and safety (H&S) performance continues to be challenging. H&S performance continues is poor, and according to the Construction Industry Development Board (CIDB), non-compliance with H&S regulations is a major contributor to this, in the South African context (2008) (Mafuya & Smallwood, 2020).

The relationship between choice of standard-form construction contract and H&S performance on construction sites will be explored.

Recently, construction H&S legislation has been revised to redistribute the responsibility for construction health and safety to all participants in the construction process, instead of being solely the responsibility of the main contractor (CIDB, 2008). The legislation to be referred to in this research enquiry includes the Occupational Health and Safety Act (OHSACT) No 85 of 1993, and the Construction Regulations 2014.

The OHSACT was introduced to prevent and avoid the occurrence of accidents and illnesses due to construction works (South African Labour Guide, 2018). The objectives of the OHSACTof 1993 (Department of Labour: 2014:p. 2) are

- "to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery";
- "the protection of persons other than persons at work against hazards to health and safety out of or in connection with the activities of persons at work";
- "to establish an advisory council for occupational health and safety"; and
- "to provide for matters connected therewith."

The Department of National Treasury subsequently drafted a specification document that details what H&S considerations must be made when drafting construction contracts. These specifications serve as the overarching framework for construction contracts, in order to promote the fulfilment of the OHSACT objectives (Department of National Treasury, 2012).

Construction contracts are aimed at ensuring compliance with project requirements, and with meeting the client's objectives and requirements. These requirements, as stipulated on the contract, formulate the criteria on which project performance is to be measured, since they are signed and agreed upon by the contracting parties (Richards et al, 2005). Thus H&S should be stipulated as a key performance indicator on construction sites, and the construction contract can be utilised to improve that performance (Master Builders South Africa, 2017; Rajendran, Clarke & Whelan, 2013).

The standard-form construction contracts to be explored in this study include

- FIDIC 1999 (Red Book),
- General Conditions of Contract for Construction Works (GCC),
- JBCC Series 2000 (Principal Building Agreement), and
- New Engineering Contract (NEC3) (Engineering and Construction Contract and Engineering and Construction Short Contract).

This study will analyse the H&S provisions in the standard-form construction contracts recommended by the CIDB (2005) to understand the relationship between choice of stand-form contract and H&S performance on construction sites, with reference to the Johannesburg region.

1.2 Substantiation of the problem

Construction health and safety performance in South Africa continues to be poor, and the reduction of incidents in the industry continues to be elusive. Although there have been improvements in H&S legislation over the years, incidents on construction sites continue to take place. One of the contributors to the poor H&S performance is non-compliance with H&S legislation (CIDB, 2008) (Windapo & Oladapo, 2012) (Mafuya & Smallwood, 2020).

Legislation places the burden of compliance with H&S legislation and management of H&S on the client procuring the built structure (Republic of South Africa, 1993) (The South African Labour Guide, 2018). As such, management of H&S is the responsibility of the construction client.
Clients procuring a built structure usually outsource to external service providers to deliver their construction projects since they are often not equipped to undertake such projects themselves. This creates the need for contractual arrangements that will ensure that the project objectives are met within the confines of quality, cost, and time (Richards et al, 2005) (Mzyeve et al, 2012). These contracts are put in place to clearly define the project objectives, define the roles and responsibilities of the contractual parties in order to manage risk that could arise in the project, to establish the performance monitoring criteria against the stipulated objectives and to define the punitive consequences should either party fail to fulfil its obligations (Ping et al, 2015) (Maritz & Putlitz, 2014). Literature review further indicates that state that safety is usually overlooked on construction sites, and it should be considered and planned for using the construction contract (Rajendran, Clarke and Whelan, 2013). This is further supported by Richards et al (2005) who state that the choice of contract is crucial to the successful delivery of project objectives. It is therefore, in the client's best interests to highlight compliance with H&S legislation and effective H&S management as a project objective when commissioning a construction project (Smallwood, 2019) (Smallwood & Deacon, 2020), and to utilise the construction contract as a means to achieving the objective (Mzyeve et al, 2012). There is

scope to investigate if this relationship is in place, because non-compliance with H&S continues to be rife in construction projects in the country.

Furthermore, Mzyeve et al's study (2012) investigated the relationship between standard construction contracts and the UK's Construction Design Management (CDM) Regulations; however, further investigation is required, particularly in the South African context.

The study will seek to determine what is the relationship of standard-form construction contracts and compliance with H&S legislation.

1.3 Problem statement

Non-compliance with H&S regulations is one of the leading contributors to poor construction H&S performance in the country. The relationship between the construction client's choice of standard-form construction contract and compliance with H&S legislation on construction sites will be explored in this report.

1.4 Primary research question

The primary research question is derived from the need to improve the poor H&S performance on construction sites due to non-compliance with H&S legislation.

The research question is as follows:
What is the relationship between the construction client's choice of construction contract and compliance with H&S legislation according to Gauteng-based construction attorneys and construction contracts managers?

1.5 Secondary research questions

From the primary question, the secondary research questions are identified as follows:

- What is the construction client's strategy when selecting the standard-form construction contract to be utilised on a project?
- To what extent is management of H&S a consideration when selecting the standard-form construction contract to be utilised on a construction project? To what extent is compliance with H&S legislation a consideration when selecting the standard-form construction contract to be utilised on a construction project?
- To what extent are H&S provisions, in standard-form construction contracts, effective in aligning the project with H&S legislation?
- What are the factors that hamper compliance with H&S legislation within the standard-form construction contract frameworks?
- How can these factors be rectified within the standard-form construction contract frameworks?

1.6 Research aim

The aim of this research is to determine what is the relationship between the construction client's choice of standard-form construction contract and compliance with H&S legislation on construction sites.

1.7 Research objectives

From the aim, the following research objectives are identified:

- To assess the strategy utilised when selecting the contract
- To evaluate the extent to which choice of contract serves as an indication of the client's attitude towards improving H&S performance on site- to evaluate the extent to which choice of

contract serves as an indication of the client's attitude towards compliance with H&S legislation.

- To evaluate the extent to which H&S provisions, in standard construction contracts, are effective in aligning the project with H&S legislation;
- To identify the underlying factors that hamper compliance with H&S legislation within the standard-form construction contract framework; and
- To evaluate how these factors can be rectified within the standard-form construction contract framework.

1.8 Hypothesis

Procurement strategies and the choice of the contracts are critical to the success of a project (Richards et al, 2005). Contracts enforce compliance with projects requirements, be it scope, budget, quality, time, or H&S performance.

This report proposes that choice of construction contracts is significant to improving performance of H&S on site; however, it is not as effective as it could be, nor is it the only factor that affects H&S performance on site.

1.9 Limitations

The following limitations have been identified in this study.

- The research is limited to the construction industry in Gauteng.
- The research refers to the client as an organisation, and not private individuals who have commissioned construction works.
- The research is limited to participants who are based in Gauteng, and practise in Gauteng.

- The research is qualitative.
- The method of data collection will have an impact on the data collected.
- It is not possible to select every individual in the target population; hence purposive sampling was utilised.
- The research population will be biased (purposive sampling).
- The research population have varying degrees of experience in the use of the standard-form construction contracts, this will have an impact on the data collected.
- Data collection was undertaken during Covid-19 lockdowns. Data collection was therefore limited to remote methods.
- Cost of implications of conducting face-to-face and telephonic interviews as time is billable for construction attorneys

1.10 Assumptions

The following assumptions have been made in this study:

- that contract management is undertaken by individuals with an in-depth understanding of the various standard-form construction contracts and contract law;
- that only the JBCC (PBA), FIDIC 1999 (Red Book), the NEC3 (ECC) and the GCC are referred to; the study does not encompass the entire suite of contracts;
- that research participants have varying degrees of experience in the use of the standard-form construction contract;
- that sample size will cover participants with public-sector and private-sector experience;
- that participants are not new to the construction contracts management industry and are experienced legal practitioners and contract managers in the construction industry; and
- that participants are all based and practising within Gauteng Province.

Chapter 2: Literature Review

2.1. Introduction to the literature review

The literature review seeks to understand the concepts and frameworks upon which this research enquiry is based. The literature seeks to understand how non-compliance with H&S regulations is one of the leading contributors to poor construction H&S performance in the country, and understand what the relationship between the construction client's choice of standard-form construction contract and compliance with H&S legislation on construction sites.

This chapter will focus on the existing body of knowledge that pertains to H&S in the South African construction industry. It will focus on understanding the various standard-form construction contracts and their effectiveness in enforcing H&S legislation on site, in order to improve H&S performance. This chapter will also focus on how the client is involved in managing of H&S, and how their involvement can bolster compliance with H&S legislation.

The purpose of a literature review is to refine the content and direction of the research enquiry and to develop a further understanding of the theoretical underpinnings and structure within which the study took place (Webster & Watson, 2002).

2.2. Methodology of the literature review

A pragmatic approach was adopted for the literature review. A pragmatic approach to literature provides a framework for understanding the literature through understanding the utility and practicality and of that concept being investigated (Brandom, 2000; Kaushik & Walsh, 2019). According to Morgan (2014:p. 1051), pragmatism seeks to understand "how a research enquiry is to be undertaken, why the research enquiry is undertaken, as well as understand why researchers make the decisions that they do, when undertaking a research study". The reviews of literature were evaluative.

2.3. Topic Area 1: H&S legislation and regulatory frameworks

- Compliance with H&S legislation in South Africa
- The objective of H&S regulatory frameworks in South Africa

2.4. Topic Area 2: Procurement strategies to achieve client requirements

- Procurement strategies to improve H&S performance
- Standard-form construction contracts
- The role of standard-form construction contracts in achieving compliance with H&S legislation and improving H&S performance

2.5. Key findings of the literature review

2.5.1) The relationship between H&S performance and compliance with H&S legislation

Construction health and safety performance in South Africa continues to be poor, and the reduction of incidents in the industry continues to be difficult to achieve. One of the contributors to this, is non-compliance with H&S regulations (CIDB, 2008) (Mafuya & Smallwood, 2020). Windapo and Oladapo (2012) identify various causes for non-compliance with H&S legislation. These include inadequate understanding of legislation by the contractors, consultants and workers on site. Research also indicates that there are factors that affect level of compliance with H&S legislation. These include management commitment to H&S, knowledge and training, penalties for non-compliance and the cost of compliance (Windapo & Oladapo, 2012).

Historically, the responsibility of compliance with legislation was placed on the contractor only. Good H&S performance is an objective of the construction team (consultants and contractors), as well as the client. The construction regulations were thus revised to redistribute the responsibility for construction H&S to all

participants in the construction process, instead of only to the main contractor (CIDB, 2008).

2.5.2) H&S legislation—OHSACT and the Construction Regulations

The OHSACT (Republic of South Africa, 1993) prescribes standards and requirements to manage the H&S of persons at work to ensure that they are protected from hazards whilst executing work activities. The OHSACT stipulates in section 8, that it is the legal responsibility of all employers to ensure a safe and healthy working environment for all its employees. The Construction Regulations of 2014 (Republic of South Africa, 2014), which are promulgated under the OHSACT, prescribe minimum standards and requirements to manage the H&S of persons executing construction activities. According to Webber Wentzel Attorneys (2014), the objective of the construction regulations is to reinforce the responsibilities and obligations of the parties involved in construction-related projects. This includes a requirement for a more active participation by the client and more stringent compliance inspections by the Department of Labour (DoL), with severe penalties for non-compliance.

2.5.3) The role of procurement in managing H&S.

Clients procuring a built structure usually outsource external service providers to deliver their construction projects since they are, more often than not, unable to undertake such projects themselves. This creates the need for a contractual arrangement to ensure that the project objectives are met within the confines of quality, cost and time (Richards et al, 2005). These contracts are put in place to clearly define the roles and responsibilities of the contractual parties, to manage risk that could arise in the project, to establish the performance monitoring criteria and to outline the punitive consequences should either party not fulfil its obligations (Ping et al, 2015). Rajendran, Clarke and Whelan (2013) state that

safety is usually overlooked on construction sites, and it should be considered and planned for using the construction contract.

A construction contract, as a procurement tool, can be utilised to improve the performance of H&S on sites (Master Builders South Africa, 2017; Rajendran, Clarke & Whelan, 2013), and reduce cost overruns and time delays that can arise as a result of poor H&S management (Windapo & Oladapo, 2012). This is because the fear of punitive consequence management is considered a motivator for improved performance by the contracting parties (Health & Safety Executive, 2003:p. 43).

It is important to note that enforcement of compliance with H&S legislation through the legal contract framework is not the only solution to poor H&S statistics in the country; however, it is merely one of the interventions required to reduce construction safety incidents on site (CIDB, 2008; Rajendran, Clarke & Whelan, 2013; Richards et al, 2005).

2.5.4) Standard-form contracts in the context of South Africa

Standard-form contracts are defined as "a contract between two contracting parties that is published by an authoritative industry body which are deemed to be agreed by both parties and are not subject to any further amendments" (Watermeyer, 2012:p. 14). There are different types of standard-form contracts that can be applied in the context of the South African construction industry. The CIDB (2005) has made recommendations on the types of standard-form construction contracts to be used in the public sector; however, these recommendations remain widely popular in the private sector as well (Bowmans Law, 2016). The South African construction industry generally uses four types of standard-form contracts, namely the JBCC suite of contracts for building works, the NEC3 suite of contracts, the FIDIC suite of contracts and the GCC for engineering works (Maritz, 2009).

Sharkey et al (2014) indicate that the client is the party primarily responsible for the choice of construction contract to be used. This is because the client as the project owner is responsible for setting out of the project objectives which the contract is in place to enable (Smallwood, 2019) (Smallwood & Deacon, 2020). As the project owner, the client is the party that is most invested in successful delivery of the project outcomes. As the party that bears the most interest in delivery of the project, the client has the highest responsibility of any project and therefore is a key decision maker (Bower, 2003) (Rowlinson & Mcdermott, 1999) (Ndlovu, 2017)

The latest survey of procurement indicators that was undertaken by the CIDB was in 2015. According to the CIDB (2015), the majority of projects surveyed were contracted using one of the standard-form contracts.

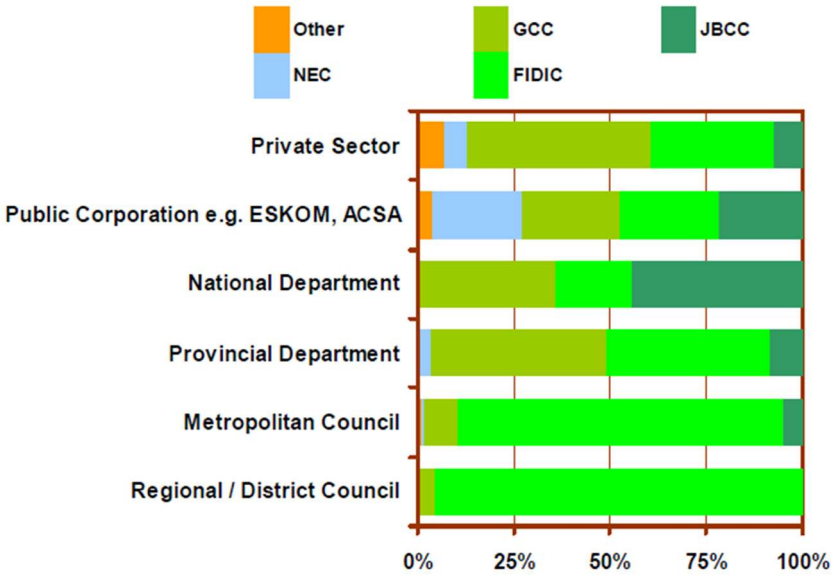


Figure 1: General conditions of contract: (CIDB, 2015:p. 9)

The survey report indicates that the GCC was the most popular contract for the private sector for engineering works, followed by the FIDIC suite of contracts,

with the JBCC the third most popular. The survey report also indicates that NEC, FIDIC and JBCC had equal popularity in the public sector. The public sector results are further broken down to indicate popularity at the various public-sector levels:

- National level: the JBCC is the contract of choice, followed by the GCC, with the FIDIC contract in third place;
- Provincial level: the GCC is most popular, followed by the FIDIC suite of contracts;
- Metropolitan level and District level: the FIDIC suite of contracts are the most popular, with the GCC coming in at second place.
  GCC is most common contract for civil, mechanical and electrical works. And JBCC is most common for residential and non-residential building works.

Project Type	% Contract Document Type usage for each Project Type					Total
Residential Building	20	-	68	8	4	100
Non-residential Building	13	1	83	-	3	100
Civil Works	76	4	6	10	4	100
Mechanical Works	27	13	10	23	27	100
Electrical Works	27	20	29	18	6	100
Special Works	31	6	44	13	6	100
Contract Document Type	GCC	NEC	JBCC	FIDIC	OTHER	
% Projects with Contract Document significantly amended	31	36	24	33	18	

Figure 2: Type of contract document used for different project types: (CIDB, 2015:p. 16)

In a 2014 study conducted by the CIDB (2014), the JBCC was deemed the most popular contract for residential (68%) and non-residential (83%) building projects. The GCC was the most popular standard-form contract for civil (76%) contracts (Construction Industry Development Board, 2014). It is to be noted that the CIDB has not conducted similar studies since 2015, it is therefore possible that the above findings on the popularity of contract documents may have changed as industry conditions evolve.

The literature indicates that several factors influence the choice of standard-form contract to be utilised. These include familiarity, suitability for project scope, ease of use, frequency of use in industry, risk allocation, minimising legal costs, recommendation and influence by consultants (Sharkey et al, 2014; Ndlovu, 2017). According to Lupton and Stellakis (2019), the main driver in selecting a standard-form contract in the public sector is underpinned by procurement policy and legislation.

2.5.5) H&S provisions in standard-form contracts

These contracts have standardized contractual provisions that refer to the various project objectives. The aim of the standardized contractual provisions is to describe the obligations of the contracting parties and to assign project risk between the contracting parties (Mzyece et al, 2012).

The H&S provisions in the various contracts are shown in Table 2 below.

Table 2: H&S provisions in standard-form construction contracts

Standard-Form Construction Contract	H&S Provisions
1. JBCC (PBA) Edition 6.1 (2014)	"The employer and contractor shall comply with the law." Clause [2.1] "Contractor indemnifies the employer against claims arising from injuries or illness arising out of or due to execution of works." Sub- Clauses [9.1.1] and [9.1.2]

	(Joint Building Contracts Committee, 2014)
2. FIDIC Red Book 1st Edition (1999)	- "Law which is to apply to the contract shall be the law of the RSA." Clause [1.3.2]. - "The contractor shall, in performing the Contract, comply with applicable laws." Clause [1.13] - "The contractor shall at all times take all the reasonable precautions to maintain the health and safety of the Contractor's personnel. In collaboration with local authorities, the contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance services are available at all times at the site and at any accommodation for contractor's and employer's personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. "The contractor shall appoint an accident prevention officer at the site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the contractor shall provide whatever is required by this person to exercise this responsibility.

	"The contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence, the contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonable require." Clause [6.7]. (FIDIC, 1999)
3. NEC3 (ECC) April 2013	- "Law which is to apply to the contract shall be the law of the RSA." Clause [1.3.2]. - The Contractor acts in accordance with the health and safety requirements stated in the Works information." Clause [27.4] (NEC3, 2013)
4. GCC 3rd Edition (2015)	- "Law which is to apply to the contract shall be the law of the RSA." Clause [1.3.2]. - "The employer may authorize an agent to act as his representative relating to the responsibilities imposed by the OHSACT on the employer." Clause [3.2.4] "The contractor shall, in fulfilling the contract, comply with all applicable laws, regulations, statutory provisions and agreements." Clause [4.3.1].

	(South African Institution of Civil Engineering, 2015)

The four standard-form contracts differ in the extent to which they refer to H&S legislation. Lupton and Stellakis (2019) indicate that this is due to the attempt to remain applicable and relevant in various jurisdictions that these are used in. This results in reference to H&S legislation that is generic and provisions that are not specific to particular H&S regulations and acts. As a result, standard-form contracts are not prescriptive in how compliance with H&S legislation should be determined.

Studies indicate that benefits of standardized contracts include reduction in legal costs by eliminating the need to draft a contract from scratch for every project that a client undertakes, familiarity with the contract by contracting parties due to being frequently used in the industry, and ease of contract administration that is gained through consistent usage of the contract (Sharkey et al, 2014:p. 34; South African Council for the Quantity Surveying Profession, 2014).

Disadvantages of standard-form contracts include being too administrative and difficult to understand (South African Council for the Quantity Surveying Profession, 2014).

2.5.6) The role of the construction client in ensuring compliance with H&S legislation and improving H&S performance on construction projects

Musonda, Pretorius and Haupt (2012) indicate that the general perception in the construction industry is that management of safety is only at construction management level, as opposed to being managed by various participants in the end-to-end process of construction, including the consultants employed (i.e., designers) and the client. This way of thinking implies that management of H&S

is only at contractor level on site and that the most effective way of improving H&S on site is to improve the contractor's ways of working at site level.

Recently, the Construction Regulations were revised and implemented to increase the role that the client plays in management of H&S on site (Okorie, Fidelis Emuze & Wyk, 2014), and thereby tip the scales of responsibility for H&S, so that it is shared by both contractor and client.

Additionally, various studies have indicated that a client's commitment to H&S is evident in the safety culture and safety climate of their respective organisations (Musonda & Smallwood, 2008). Research has also identified that safety culture and safety climate serve as leading indicators for safety performance; therefore, the more positive the safety culture and the safety attitude, the more positive the H&S performance (Molenaar, Jeon-II & Washington, 2009; Kalteh et al, 2021; Kundu, Yadev & Yadev, 2015).

According to the Great Britain Advisory Committee on the Safety of Nuclear Installations (1993), client safety culture refers to

> "the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of a client organization's H&S management. Organisations with a positive safety culture are characterised by communications founded on mutual trust; by shared perceptions of the importance of safety, and by confidence in the efficacy of preventative measures." (p. 23)

Niskanen (1994) defines safety climate as "a set of attributes that can be perceived about particular work organizations and which may be induced by the policies and practises that organizations impose upon their workers" (p. 241).

Research points to the fact that client organisations where the management is committed to management of H&S will have H&S management systems, including H&S policies, H&S processes, H&S procedures that serve as guidelines, as well as H&S standards and H&S audits (Robson et al, 2007). Organisations with occupational H&S management systems, as well as safety management systems, have better H&S performance, with increased workplace productivity, decreased accident and injury rates, increased H&S awareness by management and by workers, and increased employee participation in H&S initiatives (Robson et al, 2007; Yoon et al, 2013). If top management within the client organisation is committed and invested in managing H&S, then implementation of the H&S system will be more effective, and H&S performance will improve (Agumba & Haupt, 2018).

Chapter 3: Research Design

3.1 Research philosophy and approach

What is the relationship between the construction client's choice of construction contract and compliance with H&S legislation according to Gauteng-based construction attorneys and construction contracts managers?

This research was a perceptive study. It sought to gain insight into the research population's perspective and their lived experience (Howson, 2017). It sought to study the perceptions of the population groups in order to determine the relationship between the choice of contract used on a construction project and compliance with safety obligations.

Perceptive studies are, in their nature, qualitative, because qualitative research is utilised to answer questions on lived experience and perspective, from the standpoint of the research participant (Hammarberg, Kirkman & Lacey, 2016). The qualitative research method used in this report was the grounded theory method. Grounded theory methods seek to derive theories and concepts from the data collected. Research indicates that grounded theory is suited for the study of human behaviour and lived experience (Goulding, 1998). Research also states that grounded theory is a type of interpretivist research (Cassiani, Caliri & Pela, 1996).

The philosophy followed in this research study was interpretivism. Interpretivism refers to a view of the world that is subjective; the objective of interpretivism in research studies is to find a reason for a particular set of actions or behaviours. Research literature states that the interpretivist paradigm creates a richer understanding of social phenomena through interpretations of those phenomena by those who live and experience those worlds. (Khan, 2014; Chowdhury, 2014; Saunders, Lewis & Thornhill, 2016)

3.2 Methodology

This study was a perceptive study, utilising an evaluative approach and a grounded theory method. The evaluative approach was used since its objective is to understand how well something works (Saunders, Lewis & Thornhill, 2016:p. 176). Evaluative studies seek to deduce causal relationships between variables. This clarifies not only how these variables interact with each other, but also why they interact with each other (Saunders, Lewis & Thornhill, 2016).

The conceptual framework of the study is as shown in Figure 2 below.

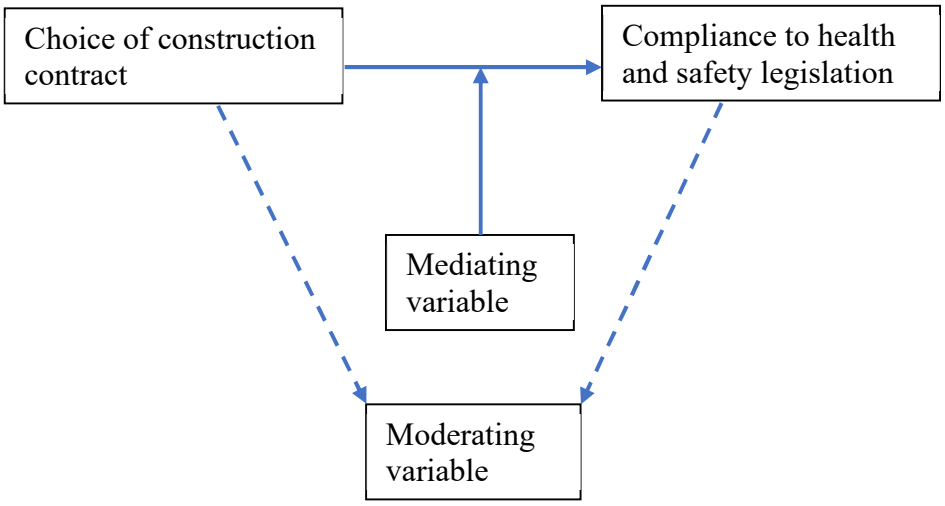


Figure 3: Conceptual framework with moderating and mediating variables

The independent variable in this study is the choice of construction contract. The dependent variable is compliance with H&S legislation and the levels of compliance (Agumba & Haupt, 2018). The study also examined what the mediating and moderating variables are.

A mediator variable is the link between two variables. Variable 1 leads to the mediating variable, which in turn causes the effect that is Variable 2. Mediator variables indicate why a particular effect in a relationship occurs (Mackinnon, 2001; Mackinnon & Cox, 2012). Examples of mediator variables in this context

include H&S clauses in the contract, allocation of risk in the contract and inclusion of H&S management in the various project stages.

The moderator variable influences the strength of the relationship between two variables; however, the independent variable, which is Variable 1, has no effect on it (Farooq & Vij, 2017). Examples of moderator variables include safety climate, safety culture, organizational culture, prioritization of safety by client and contractor, project timelines and budget, age of the organization, and industry type (Farooq & Vij, 2017).

The interpretivist philosophy was adopted for gathering and analysing data.

3.3 Research methods

The research methods employed used a grounded theory approach, since this approach allows for patterns and trends to arise when the data is analysed, and suggesting a theory (Charmaz, 2003; Walsh et al, 2015). When using the grounded theory approach, the researcher re-iteratively analyses the data collected, to identify possible trends that arise from the data, in order to formulate a theory on the subject being studied (Tie, Birks & Francis, 2019; Astalin, 2013). This re-iterative method of analysing the data collected, in order to identify common trends and differences, is referred to as constant comparative analysis (Tie, Birks & Francis, 2019).

Content analysis was utilised to assess the construction contracts and applicable H&S legislation. Content analysis is an appropriate method to analyse documents and texts in a quantitative manner (Mzyece et al, 2012; Saunders, Lewis & Thornhill, 2016).

The intention of the research method was to identify the extent to which the two variables indicated above (choice of construction contract and compliance with H&S legislation) relate to each other in the population groups studied.

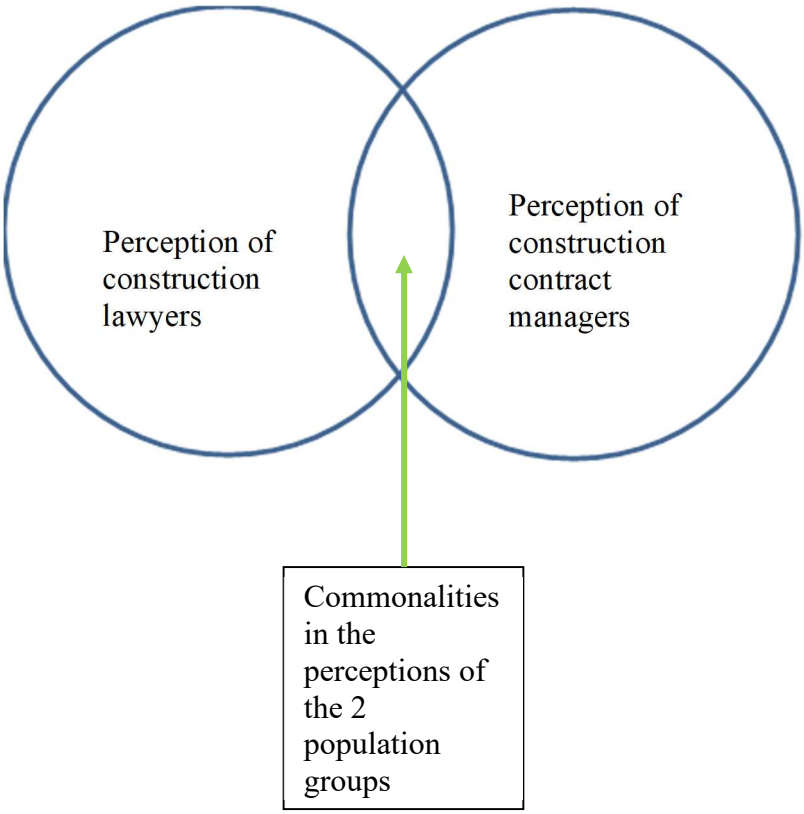


Figure 4: Venn diagram indicating approach to analysing data

To investigate the relationship between the variables studied, this research employed a survey method, since face-to-face interviews were difficult to coordinate during the COVID-19 pandemic. There were other logistical challenges, including billable time required for face-to-face and telephonic interviews; scheduling conflicts and the required interviewees having fully-booked meeting calendars.

Face-to-face, semi-structured interviews were the preferred mode of collecting data, since they would have provided an opportunity to probe the responses, and for follow-up questions and discussions on subject matter that were not previously included but are significant for better understanding of the participant's responses (Saunders, Lewis & Thornhill, 2016). The data collection strategy was revised to a self-completed questionnaire because of challenges in undertaking face-to face

interviews during the national covid-19 lockdown, as well as the cost implications for time to be spent with construction lawyers who utilised time-based billing for the services that they offer. Saunders, Lewis and Thronhill also indicate survey questionnaires are used for descriptive and explanatory research studies because they enable the researcher to examine and explain relationships between variables in cause-and-effect relationships (2016:p. 439).

The survey was distributed to the required participants using a hyperlink to an online survey tool (Survey Monkey). The survey was 15 minutes long, and respondents were given 30 days to respond, with one follow-up included.

Some of the limitations encountered during data collection with the revised survey questionnaire method include the following financial limitations:

- pay-per-use web-based survey portals and
- paid LinkedIn subscription in order to enable direct emailing to the target participants.

3.4 Population and sampling

Purposive sampling was utilised to select the research population. With purposive sampling, the population to be sampled is academically qualified and has the relevant industry experience to understand the questions and make sound conclusions. Purposive sampling is an effective sampling method when the researcher has identified what information they need to know and sets out to identify individuals able to provide that information, due to in-depth knowledge and experience in that field of study (Tie, Birks & Francis, 2019; (Etikan, Musa & Alkassim, 2016; Tongco, 2007). In purposive sampling, the size of the population is determined by data saturation, not by statistical analysis (Etikan, Musa & Alkassim, 2016).

The population for this study was two groups of a limited number of individuals who practise construction contract management in the Johannesburg area.

The first group comprised construction lawyers specialising in contract management, dispute avoidance and dispute resolution. The second group comprised construction contract managers. These two population groups were selected because the literature review indicates that the two groups have detailed knowledge of the various construction contracts (Sharkey et al, 2014). Research however, also indicates that only 3% of the incidents that occur on construction sites result in litigation (Othman, 2012). This suggests that the number of construction incidents that contract lawyers are exposed to, will be far lower than the number of construction incidents that contract managers are exposed to. This may skew the findings of the study.

A target population of 14 was required for the survey, with seven participants required from each group. These participants were identified because they had made use of all four construction contract types. Linkedin assisted in reaching the required participants, since it offers visibility of relevant criteria. These criteria include industry type, working experience, job description and job title. Various filters were applied in the search in order to identify the respondents who met the criteria for the study: attorneys specializing in construction law based in the Johannesburg area, and construction contract managers based in the Johannesburg area.

The survey was distributed, using a hyperlink, to 55 pre-determined construction law professionals and to 20 pre-determined contract managers via Linkedin or via email. There was a 12% response rate for construction lawyers with 7 responses out 55. The response rate for contract managers was 35%; 7 out of 20 participated before the survey closed. The overall response rate for both classifications of respondents is 18% (14 respondents out of 75).

3.5 Development of the research instrument(s)

The survey questionnaire was compiled through reviewing literature. The questionnaire was designed to be semi-structured, with closed questions to guide

the flow of questionnaire, as well as open-ended questions that allowed the participants to explain further why they selected a particular answer or response in a preceding question. Both participant groups were asked the same set of questions.

3.6 Data collection protocol

The preferred data collection was by means of semi-structured contact interviews. However, this data collection strategy was changed to a self-populated questionnaire survey that included a compilation of both closed and open-ended questions. The revision of the data collection strategy was due to the COVID-19 pandemic and other logistical challenges. An extensive literature review was another form of collecting data.

3.7 Ethical risks and mitigation strategy

Table 3: Ethical risks and mitigation strategies

Ethical Risk	Mitigation Strategy
• That the research is done in a professional manner and does not constitute harassment.	• Participants to be informed that participation in survey is voluntary and can be halted at any point in time should they wish. • Participants to be informed of time required for survey. Sufficient time is required to complete the questionnaire to avoid rushed incomplete responses due to time constraints.
• Informed consent to participants willing to partake in the research.	• Participants to provide informed consent prior to start of survey. • Explicitly highlighted to participants that the survey will be anonymous,

	and that the study is for academic purposes only.
• Confidentiality and privacy issues in contract management practises within organisations where the population is employed.	• Participants to be informed that participation in the survey is confidential and anonymous at start of the survey; no names of the respondents shall be utilised in the final submission document. Participants to be informed that interview responses are solely for academic purposes and will not be published on public platforms.
• Research includes cross-cultural population and respects cultural boundaries.	• The questionnaire shall be sensitive to cultural differences and not seek to impose on others' beliefs, by being tolerant, patient and sensitive to potentially provocative and unconventional opinions.
• Personal bias and preconceived notions of researcher.	• Researcher's personal assumptions and bias to be indicated and acknowledged prior to start of data analysis.
• Bias in the sample population.	• Ensure that the population is free from bias towards people of any demographic, age, race, gender, etc., except for profession and industry experience, as per purposive sampling.
• Hesitance and lack of openness by participants to	• Purpose of the interview and the research study to be explained to the

interview questions, which may distort interview responses.	participants of the survey; opportunity to ask questions to be given to the participants.

3.8 Validity and reliability

Since purposive sampling was the strategy for data collection, the responses of the participants are therefore reliable and valid.

Reliability of the data collected is high due to the following:

- the use of email/Linkedin mail ensured that the correct participant (who met all criteria) received the invitation to participate in the survey;
- likelihood of contamination of the data was low because many people read and respond to their mails themselves without delegating to a third party (Saunders, Lewis & Thornhill, 2016:p. 442);
- likelihood of uninformed responses was low due to the purposive sampling approach to determine research participants, ensuring that respondents met the minimum criteria to participate in the survey; and
- likelihood of distortion of respondents' answers was low due to the use of a closed question to precede an open-ended question, which Saunders, Lewis and Thornhill indicate reduces the likelihood of distorted responses (Saunders, Lewis & Thornhill, 2016:p. 441).

3.9 Data analysis

A qualitative approach was utilised to analyse the survey responses. The data collected were analysed through an interpretivist philosophy. Comparative content analysis was used to analyse the responses from both population groups.

The intent was to identify any differences and similarities in responses that demonstrated a trend.

Chapter 4: Results

The study compares the responses from two ends of the construction process: the front end (execution of project) and the back end (dispute resolution in the event that incidents do occur).

4.1. Highest qualification of the participants

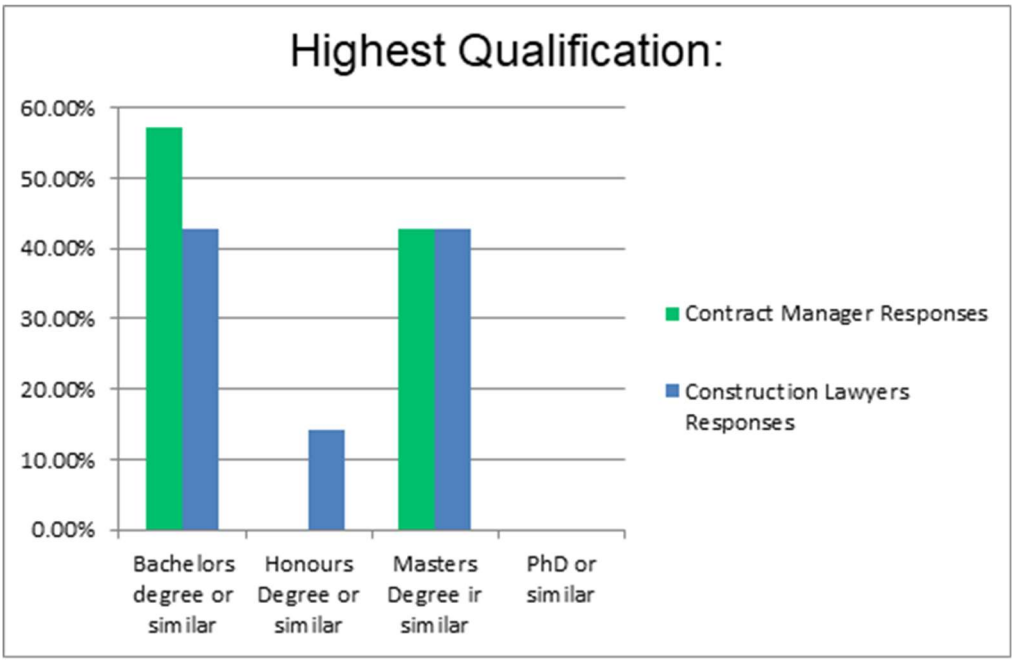


Figure 5: Graph of highest qualification of participants

The contract managers had a wider spectrum of degrees, ranging from civil engineering, industrial engineering, financial management to project management. This is because construction contract management is deemed an occupation. Law, on the other hand, is a profession, as such, training and education is standardized and specialized since it is governed by an overarching body. All participants therefore have an LLB or a BCom Law degree. Riska states that the key differences between an occupation and a profession are that a profession requires specialized knowledge, and practise, is restricted and governed by a regulatory body to ensure quality and ethical standards are maintained. An occupation,

however, is a specific type of work that arises from a need in the market. There are usually no regulatory bodies that govern occupations. This categorization differentiates a profession from an occupation (Riska, 2017).

4.2. Industry experience of the participants

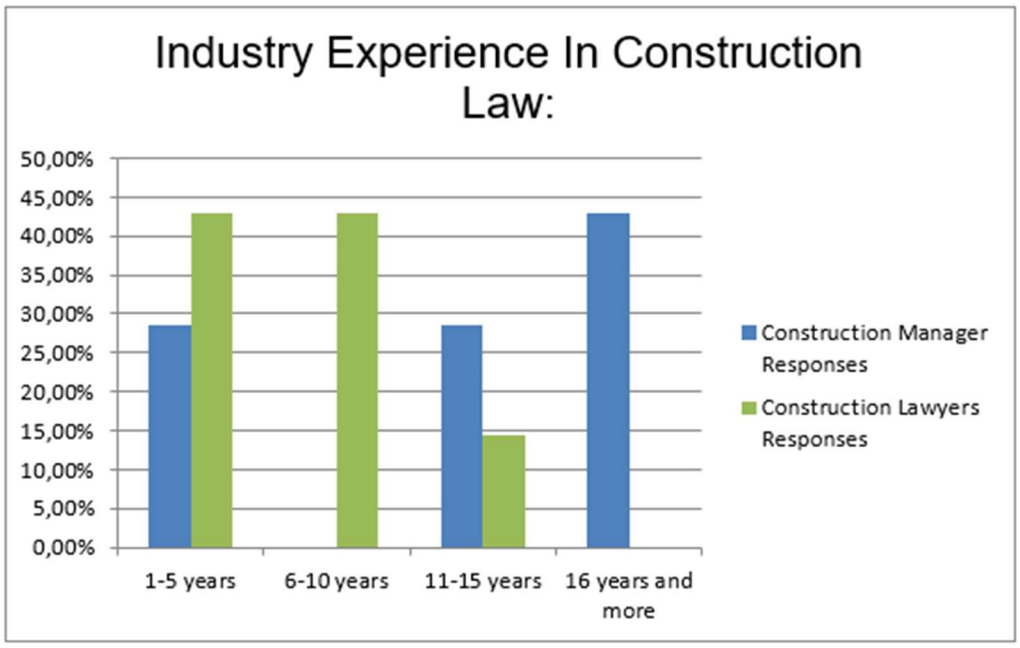


Figure 6: Graph of participants' industry experience

The majority of contract manager respondents (71%) had industry experience exceeding 10 years, as opposed to 85,7% of the construction lawyers' respondents who had fewer than 10 years of working experience. The vast difference in working experience may impose a limitation with regards to comparing the responses of the two population groups, one group being more experienced than the other. The groups may therefore perceive risk, approach to safety and experience of the various construction contracts differently due to the differences in working experience (Horn, 2006). Idrees, Hafeez and Kim (2017) also suggest that perception of safety can be affected by demographic factors such as age, experience and educational level.

Nevertheless, these participant responses are expected to be subjective, as is the nature of the interpretivist philosophy this research is based on. It is understood that the participants responses were based on the different perspectives and contexts within which they view the world.

4.3. Sector type of projects

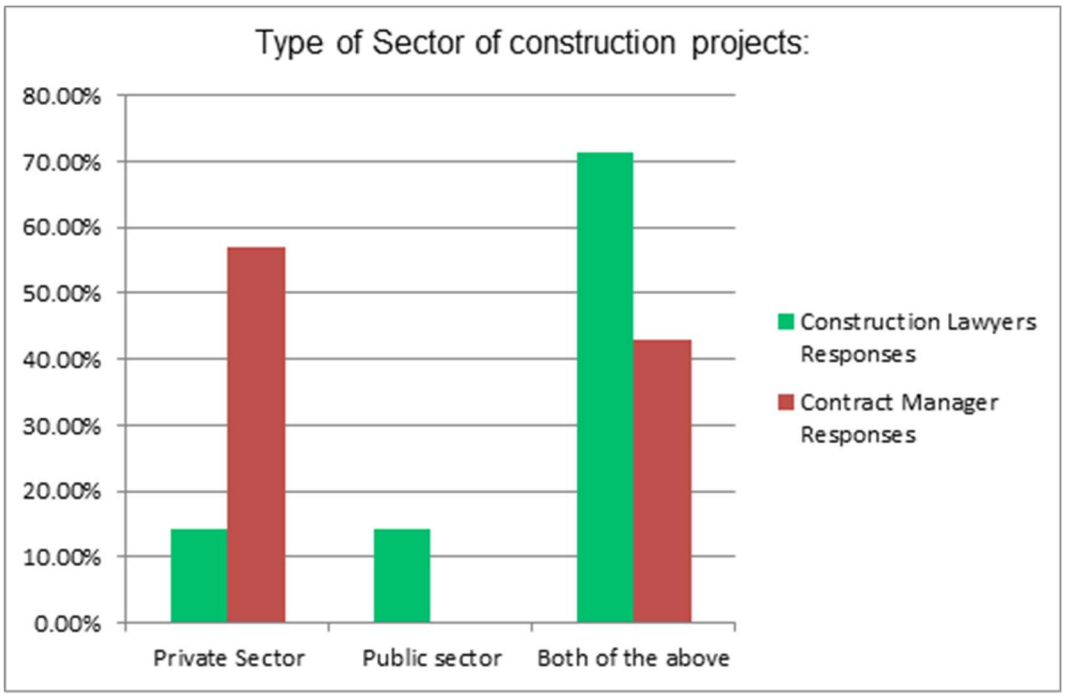


Figure 7: Graph of business sector in which participants practised

The majority of construction lawyers had practised in both the private sector and the public sector, whereas the majority of the contract managers have practised in only the private sector. This could result in a bias against standard-form contracts used primarily by the contract managers in the public sector.

The literature indicates that all four standard-form construction contracts are equally used in the projects of public corporations (i.e., Eskom and ACSA), and that the most popular contracts in Provincial departments are the GCC and the FIDIC, whereas FIDIC is mostly used at Metropolitan level. The contracts of choice in the private sector are the GCC and FIDIC (CIDB, 2015). This may

result in a bias against the NEC, since it is not as widely used in the private sector and in public-sector projects at Provincial and Metropolitan level.

4.4. Summary of industry experience

The construction lawyers indicate industry experience across the end-to-end process of managing a construction contract, including both the front end) and the back end. Common themes in the front end of contract management include contract set-up at tender stage and project execution. Common themes on the back end of contract management include dispute avoidance, dispute resolution, arbitration, and litigation.
Experience ranged from commercial construction projects to public sector infrastructure projects.

Participants' responses indicate a wide variety of industry experience, in both the public and private sectors. The commonalities in contracts management experience ranges from civil engineering works, building works and facilities management, which implies familiarity with more than one standard-form contract. The contracts managers also have experience in multi-disciplinary teams as Principal Agents.

4.5. Level of familiarity of the construction contracts

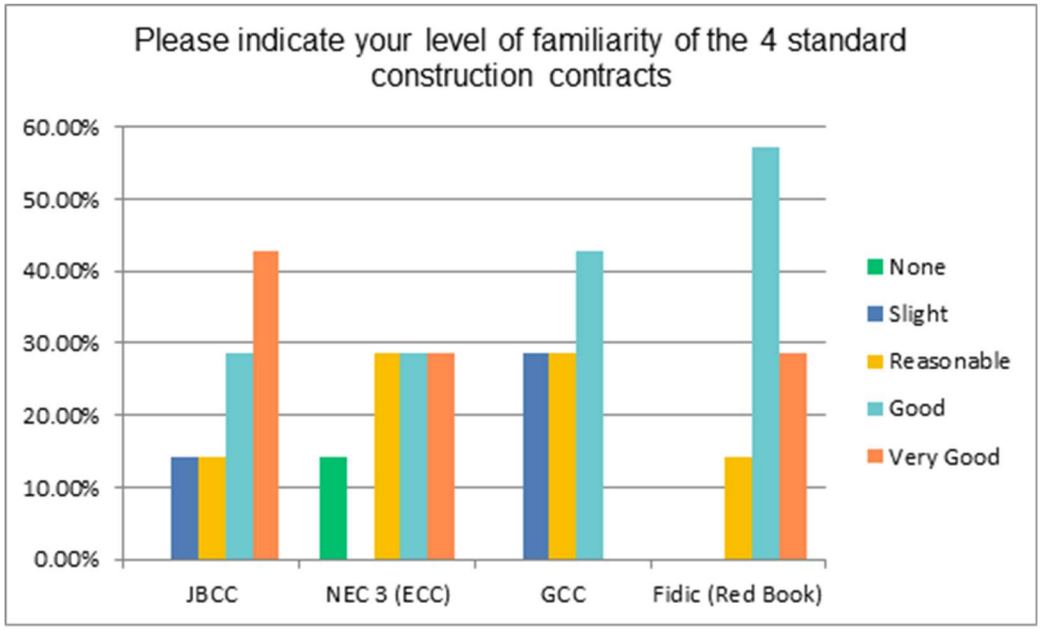


Figure 8: Graph of construction lawyers' familiarity with standard-form construction contracts

Among construction law participants, 14.29% indicated that they had never worked with the NEC3. However, familiarity with the other construction contracts generally ranged from "Reasonable" to "Very good". This feedback is satisfactory since it indicates that participants in the survey are reasonably knowledgeable on the subject.

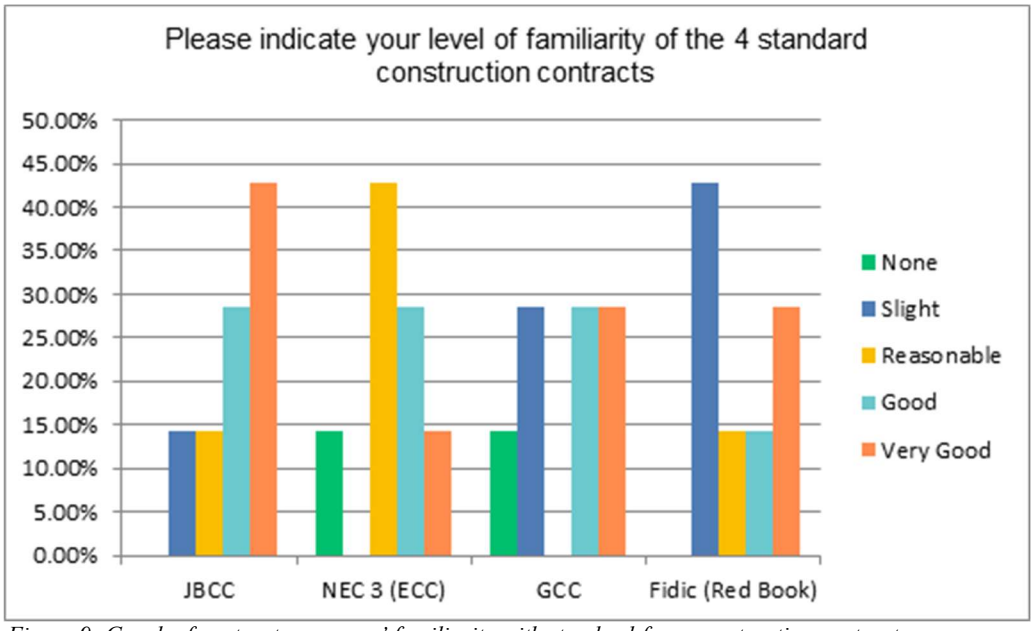


Figure 9: Graph of contract managers' familiarity with standard-form construction contracts

Among contract managers, 14.29% indicated that they had never worked with the NEC3 and the GCC. However, familiarity with the other construction contracts generally ranged from “Reasonable” to “Very good”. This feedback is satisfactory since it indicates that participants in the survey are reasonably knowledge-able on the subject.

The above findings are in line with various studies that have been undertaken by industry bodies. Maritz completed a study to identify which standard-form contract industry consultants (i.e., architects, quantity surveyors, project managers, engineers and contractors) in the Gauteng region are most familiar with. The JBCC was ranked highest in terms of users’ level of knowledge (Maritz, 2009:p. 12).

TYPE OF CONTRACT	Mean	RI	Very low	Low	Average	High	Very high
JBCC Series 2000	4.3	.82	0	2	5	31	26
GCC 2004	2.3	.32	22	18	12	9	3
NEC3	2.2	.30	20	23	12	6	3
FIDIC	2.4	.35	19	19	13	8	5

Figure 10: Knowledge levels of standard forms of contract (Maritz, 2009:p. 12)

4.6. Experience working with the various standard contracts

Table 11: Construction lawyers' experience working with standard-form contracts

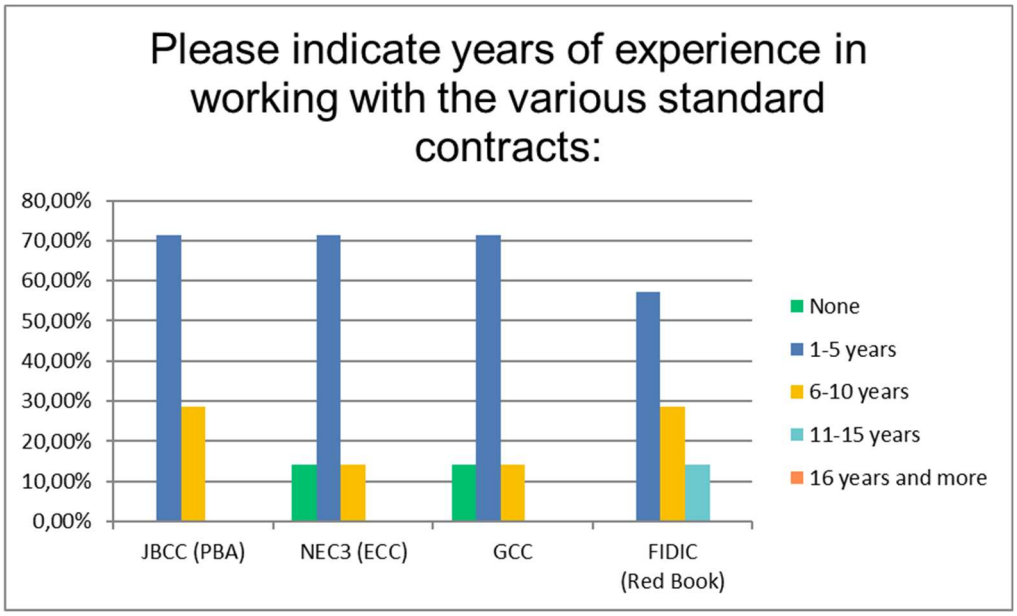


Figure 11: Graph of construction lawyers' level of experience with various standard-form contracts

Among contract lawyers, 14.29% indicated that they had never worked with the NEC3 and the GCC. This was expected, since Question 2 asked whether the participants in the construction lawyer group had worked for fewer than 10 years.

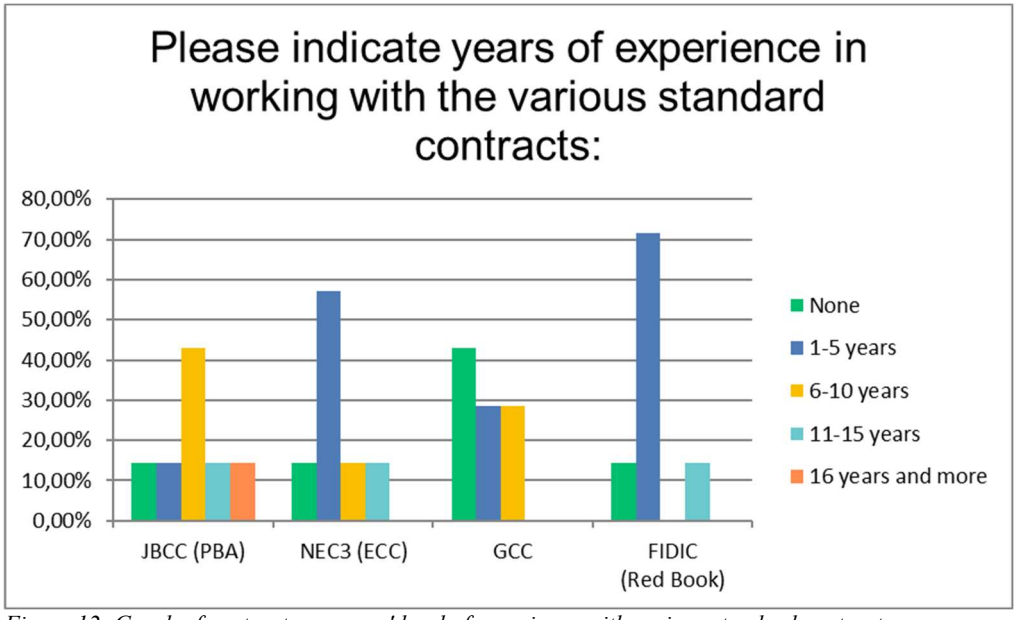


Figure 12: Graph of contract managers' level of experience with various standard contracts

There was a wide array of responses from the contract managers, highlighting a lack of experience in some of the contracts as well as moderate experience in others. The contract managers had much more working experience than the construction lawyers; however, their levels of experience in working with the standard-form construction contracts seem to be comparable. This could possibly be a result of having acquired working experience in various other roles within the construction industry before eventually moving into contract management. Among respondents, 40% indicated having more than five years' experience working with the JBCC. Another 40% indicated having no experience in working with the GCC. This aligns with the responses received for Question 5 of the questionnaire.

The above findings of the contract managers are in line with the literature, which indicates that the JBCC is the most widely-used contract amongst consultants in the construction industry in the Gauteng region (Maritz, 2009)

TYPE OF CONTRACT	Mean	RI	Never	Rarely	Regularly	High	Very high
JBCC Series 2000	4.4	.85	1	4	5	12	42
GCC 2004	1.8	.19	30	26	3	3	2
NEC3	1.8	.19	32	26	0	1	5
FIDIC	1.8	.20	34	21	2	2	5

Figure 13: Use level of standard-form contract (Maritz, 2009:p. 12)

4.7. Contract to have more effective clauses pertaining to management of H&S

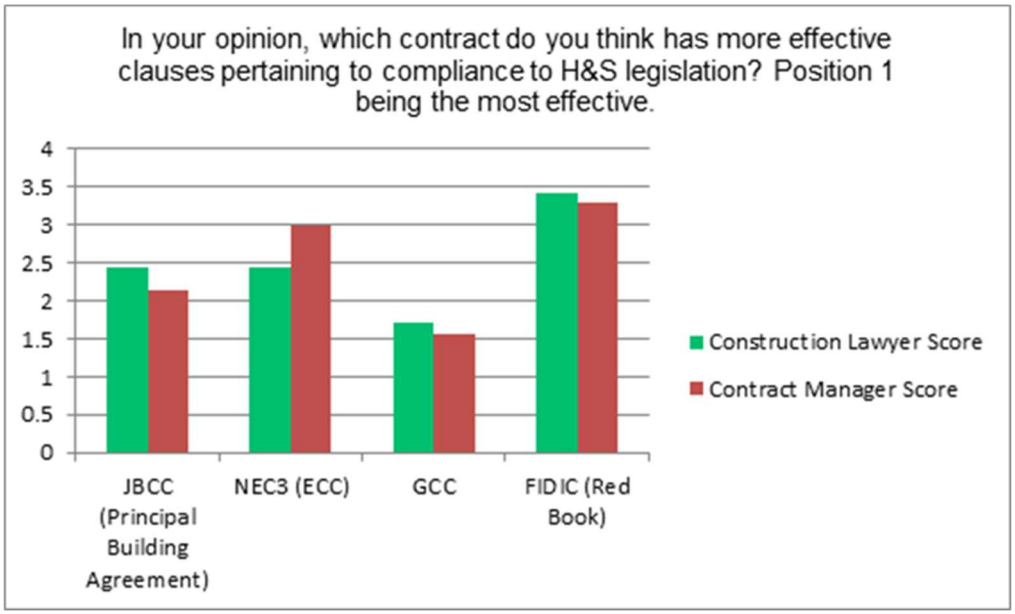


Figure 14:Graph of contracts rated to have more effective H&S clauses

Both groups seemed to perceive the contracts in a relatively similar fashion. The FIDIC Red Book was deemed most effective, followed by the NEC3 and the JBCC (third), with the GCC coming in with the lowest effectiveness rating from both the contract lawyers and the construction managers. One of the reasons for the low rating of the GCC might be the lack of experience and familiarity with the contract, as indicated at Questions 5 and 6 of the questionnaires.

4.8. Reasons for the responses in Chapter 4.7

Table 4: Construction lawyers' reasoning on ratings at Question 7

Construction Lawyer Responses	
Respondents	Responses
1	The extent of the obligations placed on the contractor. The JBCC does not mention health and safety specifically. The NEC requires that the Parties populate the contractor's health and safety obligations in the schedules to the contract. Only the GCC and FIDIC place an obligation on the contractor to appoint a health and safety agent. However, FIDIC has more extensive provisions than the GCC in relation to health and safety generally.
2	no comment
3	Not sure
4	Clear and easy to understand
5	The OHS procedures in FIDIC are best recommended because the injury statistics are lower. Risk assessments required are very good and pay attention to every area being worked in. Also insures that the people employed are perfectly qualified to execute the works.
6	Purely on the practicality of the express provisions
7	Firstly, as a legal person in construction, I believe that each clause can be amended for a reason. Therefore, if you have a client that is very serious about health and safety, these clauses will be inserted under the particular condition of the contract. So I don't believe any contract has more safety clauses.

Of the construction lawyers, 28,57% declined to comment.

Table 5: Contract managers' reasoning on ratings at Question 7

Contract Managers' Responses	
Respondents	Responses
1	NEC makes emphasis and reference to CDM (construction design management) and allocate accountability of hsse to designer whilst most other contracts mostly allocate this risk to contractors- it is then a little bit difficult to be a player and a referee at the same time.
2	Because of how Health and safety is outlined in the contract
3	This is based on the Private Sector experience when the necessary amendments can be easily included and adjusted based on client requirements. The other are extremely strict on contract terms but not those of Health and Safety
4	1. JBCC - the ultimate responsibility is with contractor. This has to be guided by H&S act. 2) NEC - H&S is incorporated in the contract as part of company H&S. 3) FIDIC - it does require contractor to maintain H&S but based on dispute resolution. GCC - covers H&S.
5	Rating is subjective based on extensive experience working with the least rated contract versus knowledge on the rest. Furthermore, contracts like FIDIC outline recommendations for works designed by or on behalf of the contractor thereby taking into consideration all necessary HSE requirements for compliance with Labour laws.
6	FIDIC& NEC contract has so much involvement in the execution of a project even stand-alone project activities. JBCC is not very flexible contract as well as GCC
7	.

Of the contract managers, 14.29% declined to comment.

4.9. Ratings of the effectiveness of the H&S clauses in the remaining contracts

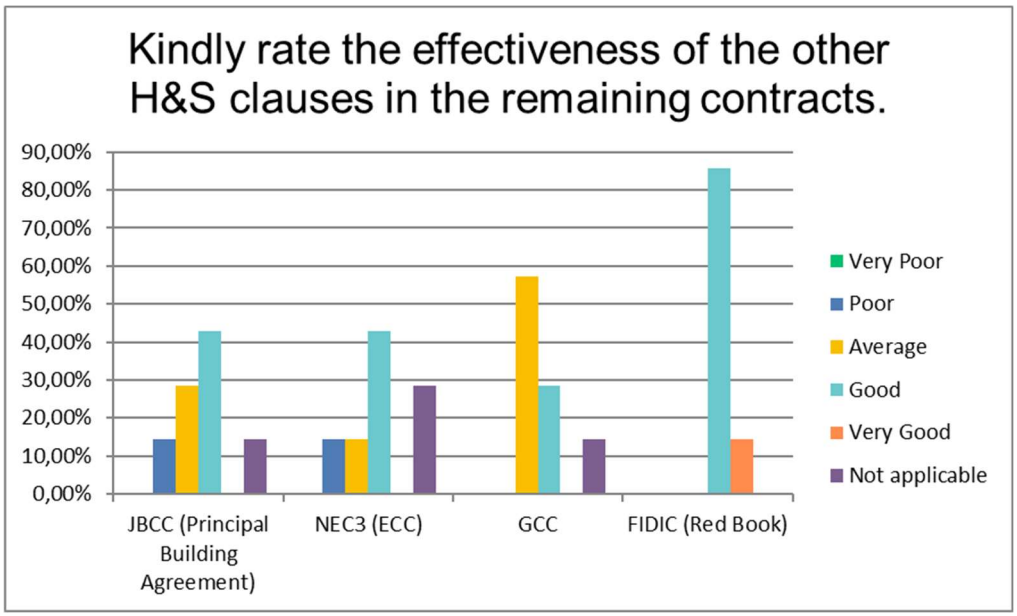


Figure 15: Graph of effectiveness ratings of H&S clauses in the remaining contracts (according to construction lawyers)

As indicated for the results of Question 7, FIDIC is deemed by 80% of the construction lawyers to have superior provisions for H&S management.

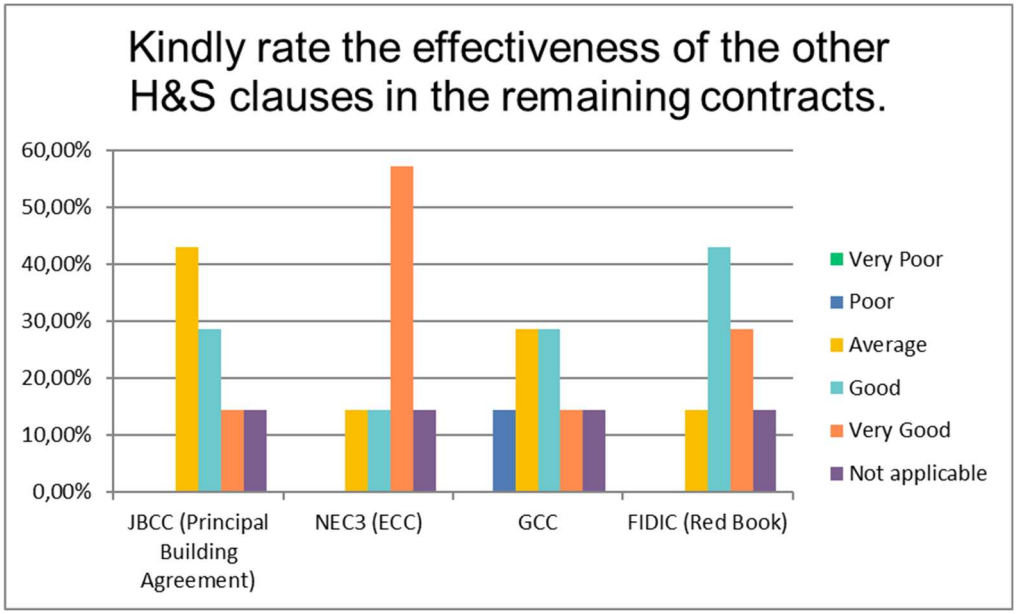


Figure 16: Graph of effectiveness ratings of H&S clauses in the remaining contracts (according to contract managers)

The results indicate that the contract managers deem the NEC3 to be the superior contract with regards to H&S provisions in contract, followed closely by the FIDIC Red Book.

4.10. Reasons for the ratings in Chapter 4.9

Table 6: Construction lawyers' reasoning on ratings at Question 9

Summary of Construction Lawyers' Responses	
Respondents	Responses
1	FIDIC has the most extensive provisions relating to health and safety. It places a wide variety of obligations on the contractor. The GCC also has adequate provisions. However, the NEC and JBCC are inadequate in this regard. Regardless of the above, all these contracts have generic provisions which need to be bolstered by other provisions to account for the specific legislation applicable to the project and the works.
2	no comment
3	Not sure
4	My personal work experience
5	because FIDIC clauses covers a wide area of workspace and items there is little room for workplace injuries and safety issues
6	They all achieve the intended outcome ultimately.
7	Same response as previous question.

Of construction law participants, 28,57% declined to comment.

Table 7: Contract managers' reasoning on ratings at Question 9

Summary of Construction Managers' Responses	
Respondents	Responses
1	Safety culture must be adopted at executive level and practiced at all levels not just on job sites
2	When implementing the project. The users of the contracts should amend the contracts to in order for them to be fit for purpose
3	Health and Safety is very deliberate and specific. The improvements need to be as such: deliberate and specific and not open for interpretation.
4	In line with legislation and accountability but client and contractors.
5	In the case of JBCC, clients should be encouraged to avoid traditional procurement approach as the successful tender usually is the one that lacks sufficient HSE insurance coverage for accidents and has largest proportion of informal workers not covered by any legal or social protection. Contractors should be assisted to develop proper risk management strategies adapted from innovative frameworks from the industry's feedback, in order to improve performance of the contract.
6	Some inclusions to integrate OHSA into the contracts
7	Budgeting for HSSE

The research results of Question 10 indicate that the contract managers deem the NEC3 to be the superior contract with regards to H&S provisions in contract, followed closely by the FIDIC Red Book.

The above findings of Questions 7, 8, 9 and 10 are echoed in a study by Mzyece et al (2012). The NEC3 contract and the FIDIC contract have more extensive provisions that relate to H&S management. Of the standard-form contracts

studied, the NEC was identified as having the most extensive provisions relating to H&S management. The provisions in the contract are more comprehensive because they provide explicit descriptions of the contractors' H&S obligations. The FIDIC contract also adopts a broad approach to management of H&S because it outlines the contractors' H&S obligations at a high level.

4.11. Strategies to improve the ratings in Chapter 4.7 and chapter 4.9

Table 8: Construction lawyers' responses on improving H&S effectiveness in construction contracts

Summary of Construction Lawyers' Responses	
Respondents	Responses
1	The only way for health and safety to become more prevalent in these standard form contracts is for the industry to ask for it. If the industry begins to emphasize the importance of health and safety, the organisations that draft these contracts will ensure that any revised versions issued contain appropriate health and safety obligations since it is the industry that purchases these standard form contracts. However, you can only take this so far. A standard form contract must be generic ie applicable in multiple countries. So its provisions cannot be too specific regarding health and safety as this will always be subject to the legislation applicable in the country where the works are to be undertaken.
2	no comment
3	N/a
4	More surveys
5	To ensure that the contracts make provision for an inspection of the site during inspection in-loco prior to the commencement of the works. To ensure that everyone on site has produced a safety file and renewal of the safety certificate annually in order for the procedures to be refreshed in everyone's minds. And lastly the clauses have to be project specific.
6	The clauses could be more prescriptive on obligations and not assume that some issues will be agreed between the parties.
7	N/A

Of construction law participants, 42,86% declined to comment.

Table 9: Contract managers' responses on improving H&S effectiveness in construction contracts

Summary of Contract Managers' Responses	
Respondents	Responses
1	Safety culture must be adopted at executive level and practiced at all levels not just on job sites
2	When implementing the project. The users of the contracts should amend the contracts to in order for them to be fit for purpose
3	Health and Safety is very deliberate and specific. The improvements need to be as such: deliberate and specific and not open for interpretation.
4	In line with legislation and accountability but client and contractors.
5	In the case of JBCC, Clients should be encouraged to avoid traditional procurement approach as the successful tender usually is the one that lacks sufficient HSE insurance coverage for accidents and has largest proportion of informal workers not covered by any legal or social protection. Contractors should be assisted to develop proper risk management strategies adapted from innovative frameworks from the industry's feedback, in order to improve performance of the contract.
6	Some inclusions to integrate OHSA into the contracts
7	Budgeting for HSSE

The results above indicate the need to amend the standard-form contracts and reinforce the requirement for H&S management by being more prescriptive in their provisions that relate to H&S. This is evident in responses such as

- "The clauses could be more prescriptive on obligations"
- "ensure that any revised versions issued contain appropriate health and safety obligations"

- “users of the contracts should amend the contracts to in order for them to be fit for purpose.”
- “Some inclusions to integrate OHSA into the contracts.”

Research shows that one of the reasons standard-form contracts are amended is due to the perception that the form is poorly drafted, as well as to reflect regulatory requirements that are not properly articulated in the contract (Sharkey et al, 2014). Rajendran, Clarke and Whelan indicate that two of the common causes of disputes in a contract are ambiguities in the contract and incomplete employer requirements. Ambiguity in contracts makes it difficult to enforce the contract. Contract disputes can be attributed to all for aspects of a project cost, time quality and safety (Rajendran, Clarke & Whelan, 2013).

Additionally, various studies have indicated that the standard-form construction contracts have insufficient provisions to manage H&S. Smallwood and Emuze (2014) conclude that there is room for improvement in how various standard-form construction contracts manage H&S. This is because reference to H&S legislation and H&S management is generalized, to remain applicable in the various jurisdictions that the contracts may be utilised in. H&S legislation has varying expectations and obligations on both the client and the contractor, which should be accommodated within the standard-form contract.

4.12. Choice of contract as an indication of the client's approach to management of H&S performance.

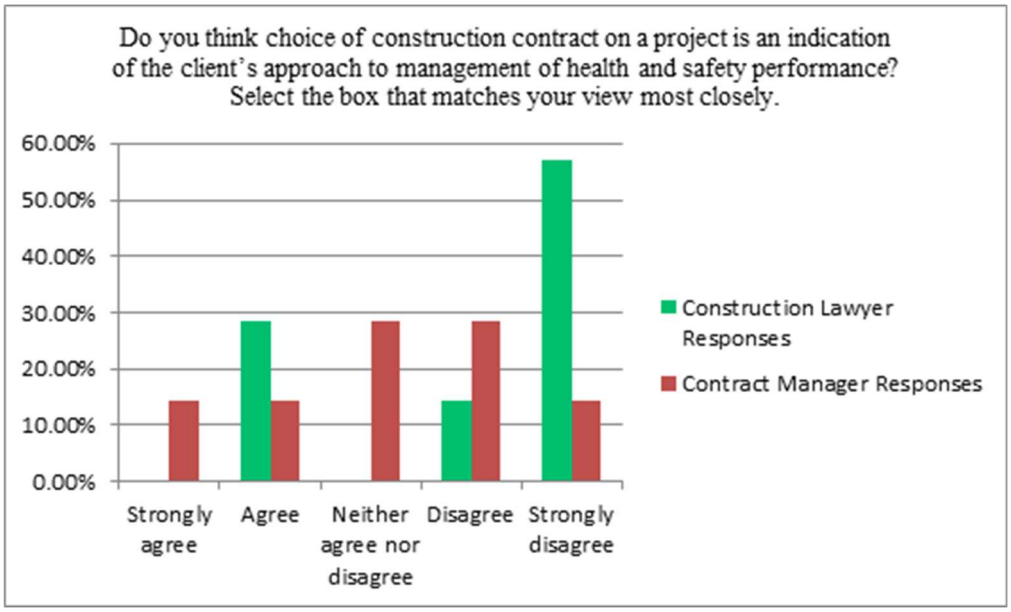


Figure 17: Graph of participant thoughts regarding choice of construction contract as indication of client's approach to H&S management

Of construction lawyers, 57% strongly disagree with the statement that choice on construction contract is an indication of client's approach to management of H&S performance. A total of 71,43% disagree (including those that strongly disagree). Of construction managers, 42,86% also disagree (including those that strongly disagree). A majority of both population groups were inclined to disagree with the statement.

4.13. Reasons for the responses in Chapter 4.12

Table 10: Construction lawyers' reasoning on responses at Question 12

Summary of Construction Lawyers' Responses	
Respondents	Responses
1	Similar to my response in 5 above, the primary considerations are the familiarity that the Parties have with the contract and the nature of the works being undertaken. For practical purposes, the choice of contract by the employer will also be affected by other factors i.e. (i) what contract its internal advisors are familiar with (ii) whether the lenders financing the project require that the employer use a specific contract (iii) the protections afforded to the employer by the contract. Health and safety obligations in the contract are largely immaterial as they can be amended or bolstered.
2	no comment
3	The contracts make provision for it, however in a limited way.
4	Contractors choose what works
5	Contractors push for productivity in order to meet their targets. Therefore, safety incidents are less of a concern
6	I have never come across a project where a choice of contract was informed by health and safety obligations. The parties can always amplify the relevant clauses if necessary.
7	N/A

Table 11: Contract managers' reasoning on responses at Question 12

Summary of Contract Managers' Responses	
Respondents	Responses
1	In the South African context, HSSE risk allocation is subject to the project owner so a form of contract that shy away from pin pointing the client as the accountant (even through an agent) so it critical to select the right form of contract. Most importantly with regards to how disputes when non-compliance is experienced.
2	Most of the time the client especially in Africa are not worried about health and safety. But the Professionals and contractor should make show that they adhere to health and safety regulations. Therefore, they should advise the client.
3	The level of Risk, caring of people, the Environment and Industry is the client perspective is risk they are willing to take and give.
4	It's because client usually focus on performance and end than H&S. It also depends on how involved they want to be on the project.
5	I think the choice of construction contract is firstly informed by complexity of the works i.e. value of project and the scope of work which in turn influence standardization i.e. what form of contract will align with the procurement strategy for example. Most Clients usually familiarize with HSE requirements thereafter.
6	The choice of contract is to do with organizational governance, at some point then if the Safety compliance is integrated to governance then the choice of contract could be embedded to that view. Other organizations prefer FIDIC and NEC due to maturity and complexity of projects. Safety then is one of the factors being considered but not solely a factor to influence choice of contract.
7	It is risk based

As indicated in the findings for Question 12, participants disagreed that choice of contract is an indication of client's commitment to management of H&S. H&S is not a consideration in contract selection, and this is identifiable in responses such as the following:

> "Health and safety obligations in the contract are largely immaterial"

> "Contractors push for productivity…safety incidents are less of a concern"
>
> "I have never come across a project where a choice of contract was informed by health and safety obligations."
>
> "It's because client usually focus on performance and end than H&S."

Responses indicate risk allocation, familiarity, scope and complexity of works as the key considerations for which standard-form contract to utilize. This is in accordance with the literature. Various studies have asserted that several factors influence the choice of standard-form contract to utilise. These include familiarity, suitability for project scope, ease of use, frequency of use in industry, risk allocation, minimising legal costs, recommendation and influence by consultants (Sharkey et al, 2014; Ndlovu, 2017).

4.14 Proactive measures to improve construction H&S performance

Recommendations by construction lawyers include the following.

- *Indicated site specific strategies that target the front-line worker such as: increasing accessibility of toolbox talks through various languages and graphics, safety signs, informing workers of the risks of not following safety procedures, limiting distraction such as cell phones as well as the increasing safety personnel on site.*
- *Ensure that the health and safety provisions in the contract are bolstered to place a specific obligation on the contractor to ensure health and safety on the site, to appoint a health and safety agent as required by legislation and to comply with all other applicable health and safety laws and regulations.*
- *The employer needs to draft site policies and procedures (which the contractor and the employer's employees and agents need to comply with to detail, including:*
    - *(i) any specific requirements related to health and safety applicable to the site and works. i.e., will the work be undertaken at an elevated height and*
    - *(ii) manage the interface between its the employer's employees, the public generally and the work being executed by the contractor i.e., does the proximity of the site to the public mean that extensive barriers need to be placed to separate the site from the public or does the contractor have access to the employer's medical facilities on site (to the extent available).*
- *Any contract (to the extent that this is not in the contract) should be amended to cater for regular site meetings at which the employer and contactor are required to meet and discuss health and safety issues (and implementation thereof).*

Recommendations by contract managers include the following.

- *Client to receive training on issues pertaining to H&S.*
- *Consideration of H&S when the professional team (i.e.: consultants) completes their respective scopes of work, including at design stage.*
- *Client to demonstrate commitments to H&S matters and demonstrate leadership accountability for H&S matters.*
- *Upper Management commitment and involvement in site activities to promote sharing of good practices on all levels.*
- *Regular review of H&S risks, performance, and management of all contracted activities. When necessary; define and document actions for continued improvement.*
- *Sufficient graphic communication on H&S matters at construction sites, as well as use of language (written and spoken), that is understood by the workforce.*
- *Management of H&S to be priced as a separate item on the bill of quantities.*

The above responses from both participation groups are in alignment with what the literature review has shown. The initiatives proposed by both participant groups are aligned to a positive client H&S culture. The study by Musonda, Pretorius and Haupt (2012:p. 95) showed that if client commitment is demonstrated, it will have a positive influence on H&S performance.

In the responses, the contract managers suggested non-legal avenues to address H&S management, whereas amendment of the contract was one of the initiatives proposed by the construction lawyers. This is in line with what is indicated by the literature, that amendments to the standard-form contract are usually on the advice of the client's legal representative, who seeks to reduce the level of risk from their client by shifting risk to the other contracting party (Sharkey et al, 2014). Other reasons for lawyers' recommendation include the lack of technical understanding of construction works and procedures, as well as vested interests that arise from

drafting the additional contract amendments in the financial benefits thereof (Sharkey et al, 2014).

It is noteworthy that both participant groups did not mention enforcement of H&S by regulatory institutions as one of the methods to improve H&S performance on construction sites. This could be because the survey question posed did not specify the basis of H&S performance improvement.
Literature review indicates that one of the causes of poor H&S performance on construction and non-compliance with H&S legislation is the lack of effective enforcement by the DoL, which is the regulatory body responsible for implementation of the OHSACT and the construction regulations (Othman, 2012). The lack of punitive measures for non-compliance with legislation is another reason why there is low drive by contracting parties to ensure compliance with legislation (Osei-Asibey, et al., 2021). Unlike in developed countries where voluntary compliance with H&S legislation, by contracting parties, is high, the fear of punitive measures should be instilled in developing countries to stimulate compliance with H&S legislation and improve H&S performance on sites (Osei-Asibey, et al., 2021). This can be facilitated through the instatement of fines and establishment of an effective performance monitoring system by regulatory bodies, that ensures regular inspections and monitoring of H&S performance factors on construction sites (Osei-Asibey, et al., 2021)(Othman, 2012).

4.15. Closing comments, suggestions, and recommendations

Of the construction lawyer respondents, 85% declined to comment. The recommendation made by this population group was for additional initiatives at site level: rewards and recognition for good safety practises at site level will deter workers from being complacent.

Of contract managers, 57,14% declined to comment. Themes that arose from the responses received from the responses received referred to client commitment as a major contributor towards achieving a positive H&S performance. Various studies have indicated the effects that client commitment to H&S will have on performance of H&S. These studies indicate that client commitment to H&S management, establishes H&S as an organisational priority, thereby creating a positive safety culture and safety climate, which will result in positive H&S performance (Molenaar, Jeon-II & Washington, 2009; Kalteh et al, 2021; Kundu, Yadav & Yadav, 2015).

The suggestion made by the contract lawyers, however, speaks to only one characteristic of an organisations with a good H&S management system: initiatives to incentivize demonstration of good H&S behaviour by workers (Musonda, Pretorius & Haupt, 2012).

Chapter 5: Discussion

5.1 The strategy when selecting the standard-form construction contract to be utilised

The responses indicate that the primary reason for the choice of contract to be utilized rests mostly with the client and with the contractor's familiarity with the contract, the scope of the project and the complexity of the project. This is because the JBCC (PBA) is primarily used for building works. GCC is used for large-scale civil infrastructure projects. The FIDIC Red Book is used mostly in international projects, and the NEC3 is used primarily for civil projects.

The CIDB (2005), however, details a comprehensive list of factors to be considered by the client when deciding which contract to use. This includes complexity of works, management capacity capabilities and expectations of the client; requirements as per specific contracting and procurement strategies; the compatibility of organization with the contract's administrative procedures; training requirements; requirements relating to allocation and management of risk; management of cost and time; and the ability and capacity of consultants to be employed by the client. The CIDB places emphasis on pricing and contracting strategies. However, it does not make mention of H&S management. It can thus be concluded that neither management of H&S nor commitment to H&S is a consideration when selecting the standard-form contract to be used.

5.2 Choice of construction contract as an indication of the client's attitude towards H&S management

The responses to the survey show that both participant groups disagree that the choice of construction contract is an indication of commitment to management of H&S. Overall, 57% of the respondents disagreed (disagree and strongly disagree) with the statement that choice of contract is an indication of client's attitude and commitment to H&S. The responses indicate that the primary reason for the

choice of contract to be utilized rests mostly with the client and with the contractor's familiarity with the contract.

This finding is supported by the literature. However, the literature includes a few more factors that influence choice of standard-form contract, including suitability for project scope, ease of use, frequency of use in industry, risk allocation, minimising legal costs, recommendation, and influence by consultants (Sharkey et al, 2014; Ndlovu, 2017).

Both the literature and the findings of this study do not recognise commitment to H&S as an indicator of the type of standard-form contract to be utilised.

5.3 The extent to which H&S provisions, in standard-form construction contracts, are effective in aligning the project with H&S regulations

The research results have concluded that the provisions in the contracts are insufficient to manage H&S performance on construction sites. The literature review also indicates that there is room for improvement in the standard contract provisions for H&S management (Smallwood & Emuze, 2014).

Through review and analysis of the construction contracts, the following points were identified:

- The JBCC (PBA) makes no specific reference to H&S compliance. However, it stipulates that contractor and employer are to abide by all applicable laws [Clause 2.2]. The contract also stipulates that the employer (the client) is indemnified by the contractor against any claims arising from injuries or illness arising out of or due to execution of works [Sub-Clause 9.1.1] and [Sub-Clause 9.1.2] (Joint Building Contracts Committee, 2014).

- The GCC makes no explicit reference to how H&S is to be managed. However, it stipulates that the contractor shall comply with all applicable laws, regulations, and statutory provisions, and that the contractor should be able to provide evidence of such at the request of the employer [Clause 4.3.1.]. The contract also stipulates that the employer may authorize an agent to act as his representative relating to the responsibilities imposed by the OHSACT on the employer [Clause 3.2.4] (South African Institution of Civil Engineering, 2015).

- The NEC3 (ECC) refers to H&S management, albeit not specifically. It stipulates that the contractor shall act in accordance with the H&S requirements stated in the works information document [Clause 27.4] (NEC3, 2013).

- The FIDIC Red Book has an extended clause that refers to management of H&S, unlike the other 3 contracts. It stipulates that the contractor is to take reasonable precautions to ensure the H&S of the contractor's personnel, and it stipulates the appointment of a safety officer (referred to as an accident prevention officer), who is responsible for proactive measures that prevent any potential accidents [Clause 6.7] (FIDIC, 1999).

From an analysis of the contracts, it is notable that only one contract out of the four, the GCC, refers to the client's role in the management of H&S. Thus, it would seem the other three contracts negate the involvement of the client in management of H&S and performance on the construction site. All four contracts do, however, refer to the contractor's obligation with regards to compliance with legislation (H&S legislation included). Other than the GCC, which mentions the involvement of the client, the other three contracts allocate the risk of managing H&S solely to the contractor.

Through review and analysis of the survey responses, the following points were identified:

- The FIDIC Red Book is believed to have the most effective H&S clauses by both the construction lawyers and the contract managers. although there is still much room for improvement. Reasons for the above FIDIC ratings include that the contract has more extensive H&S provisions than the other contracts, and that the provisions explicitly outlined are practical to abide by.

- The NEC3 was rated second in effectiveness after the FIDIC contract. The reason given for this was that the NEC3 allows for the client to easily add additional H&S requirements in the works information document, which is an addendum to the contract. The provision for the addition of client requirements creates room for a client-driven approach to management of H&S on construction works.

- The GCC was the lowest ranked contract by both the construction lawyers and the contract managers. The reason given for the low ratings on the GCC and the JBCC was that both contracts were generic in terms of H&S, whereas FIDIC and the NEC3 were deemed to be more comprehensive.

Analysis of the construction contracts and the survey responses has revealed that there seems to be a disjointed relationship that exists between what the contract stipulates and how both population groups of the study, view the standard form contracts in practice.
The GCC makes explicit reference to client participation in the management of H&S on site, it would therefore be expected that construction sites where the GCC was utilized would perform better and be viewed as performing better, in management of H&S. It was however ranked as the least effective contract in management of H&S on site. This view contradicts with what literature review has indicated, that where clients are actively involved in managing H&S, it will

lead to a reduction in incidents on site and an improvement in the quality of work delivered Musonda, Haupt & Smallwood (2009). The absence of explicit clauses in the construction contracts does however not indicate that the construction client is not actively involved in management of H&S on a project, nor does it indicate that the client is not vested in management of H&S.
Furthermore, it is notable that both the JBCC and GCC had the lowest ratings for perceived effectiveness in management of H&S, yet they are the most commonly used contracts in the industry as indicated by various industry studies (Construction Industry Development Board, 2015) (Marx, 2014). Thereby indicating that popularity of contract does not correlate to perceived effectiveness in management of H&S.

Further analysis of the survey results suggests that both population groups in the survey believe that not enough is being done within the provisions in the standard clauses to ensure compliance with H&S legislation and that authoritative bodies that draft the standard-form contracts should bolster the H&S provisions within the contracts and ensure that any revised versions issued contain appropriate H&S obligations for the client and the contractor. This highlights the importance of H&S management as a project priority on construction sites (Smallwood & Emuze, 2014).

5.4 Underlying factors that hamper H&S performance within the standard construction contract frameworks.

The general themes identified from analysis of the research responses received include the following.

5.4.1) The lack of client involvement in management of H&S

Most of the standard-form contracts neglect client-involvement in managing H&S performance on site. The risk of H&S performance and management is allocated primarily to the contractor, and involvement by the client is not detailed. Client

involvement in management of H&S is inferred because the contracts refer to the contracting parties abiding by local legislation.

Various studies indicate that there's an inverse relationship between client commitment to H&S management and injury rates. When the construction client is actively involved in managing H&S, it will lead to a reduction in incidents on site, improvement in quality of work delivered, reducing the need for rework and a better working relation between client and contractor (Umeokafor, 2018; Musonda, Haupt & Smallwood, 2009). Client commitment herein referred to is commitment by the client organisation.

Client organisations where the management is actively involved in managing H&S, are characterised by a positive safety culture. Emuze and Smallwood (2018) identify characteristics of a positive safety culture as- having a positive attitude towards matters of safety, group beliefs that management is committed to creating a safe working environment for all workers, training and learning opportunities to upskill the workers in management of H&S and hazard identification and management, motivation to achieve a better H&S performance through continuous improvement, values that prioritize working safely by identification of hazards, implementation of mitigation strategies, and an H&S management system.

Furthermore, literature indicates that organisations where management prioritises H&S management will have a mature H&S management system in place (Umeokafor, 2018). Umeokafor (2018) indicates that when the client takes ownership and accountability for management of H&S, it is included in the overall project objectives.

ISO 4500: 2018 defines a H&S management systems as a framework to establish H&S policies, and H&S objectives and processes to achieve those stipulated H&S objectives. (Project Committee ISO/PC 283, 2018). This includes determining what the H&S risks are, what the H&S objectives are, and what processes and

procedures are to be followed to meet the required H&S objectives. The OH&S management plan describes the processes to be followed to monitor and measure the performance H&S objectives; it also details what actions are to be followed to improve the performance of and provides guidelines to improve H&S performance. Research indicates that organisations that have a comprehensive set of H&S control mechanisms, in the form a well-developed, documented H&S management system have improved H&S performance. (Passetti, et al., 2020) The implementation of an H&S management system will ensure that H&S management becomes a priority in all functions of the organisation through the adoption of additional initiatives, procedures, processes and imperatives above the minimum requirements stipulated in legislation, including the OHSACT and the Construction regulations. This will filter down from organisation level to project level. The effects of H&S management systems on H&S performance has been studied by various researchers. These studies indicate although there's reasonably good feedback however more research is still required in order to make more conclusive observations (Robson, et al., 2007).

Okorie, Fidelis Emuze and Wyk (2014) also suggest that lack of client involvement and commitment to H&S can be identified by, amongst other factors, lack of funding for H&S initiatives on site, since H&S is not prioritized and planned for.

5.4.2) The lack of inclusion of H&S as a project priority

The literature review indicates that H&S can negatively affect project cost, project timelines and project quality. Therefore, H&S is critical to project success. Relative to other industries in South Africa and construction industries worldwide, the construction process generates a disproportionate number of fatalities, injuries, and disease and both the direct and indirect costs contribute to the cumulative cost of construction. Literature indicates that globally, procurement influences construction H&S, including issues such as pre-qualification, reference to construction H&S in conditions of contract and contract documentation, facilitation of financial provision for construction H&S, assessment thereof, and

reporting thereon. A study was conducted among delegates attending a two-day summit to determine their perceptions relative to the role of procurement in construction H&S, and whether the summit had an impact, or not. The following constitute the salient findings. Delegates do have an understanding and appreciation of the role of procurement in construction H&S, and the multi-stakeholder nature of construction H&S. Furthermore, the summit did have an impact in terms of inducing a change in the delegates' culture. The paper concludes that: all stakeholders influence construction H&S; pre-qualification of all stakeholders in terms of construction H&S is important; construction H&S should be considered or referred to during all six project stages, in conditions of contract, contract documentation, and when deliberating project duration; financial provision for construction H&S should be facilitated and assessed; supply chain management within the context of construction H&S is critical; construction H&S performance should be assessed throughout projects, and be addressed in close out reports. Recommendations include: partnering as a process that includes H&S should be implemented on projects; multi-stakeholder project H&S plans should be compiled for projects, and more emphasis should be placed on construction H&S during the procurement process (Smallwood and Deacon, 2020)(Plessis & Oosthuizen, 2018) (Smallwood, 2019). Consideration of H&S should therefore commence long before the on-site construction activity starts.

H&S management should be stipulated as a project priority and incorporated in the six stages of a project (Smallwood, 2019; Malindi & Smallwood, 2018).

> Stage 1: Project initiation and briefing
> The project initiation stage is where the client sets the tone for the project in a bi-fold manner.
> Firstly, it is at this stage where the client will appoint the project consultants. The Construction regulations places the burden of ensuring the competency of appointed persons on the construction client (Republic of South Africa, 2014). The Construction regulations places emphasis on the competencies of these appointees as they will be acting on behalf of

the client to design and complete construction with minimal risk to the H&S of all involved in the project. It is at this stage that the client can proactively undertake a thorough process of identifying potential consultants that have required competencies to manage H&S. Once the potential project team has been identified, the client can then lay out the project's objectives, requirements, priorities and plan (Wells & Hawkins, 2018) (Smallwood, 2019).

Secondly, it is at this stage that the procurement approach of the project will be determined. Literature review indicates that procurement influences H&S performance (Rajendran, Clarke and Whelan, 2013) (John Smallwood, 2020). Procurement approaches such as partnering, shares the risk and burden of a project between multiple clients. Other approaches such as design-build integrate management of H&S. This facilitates coordinated efforts towards H&S management between the designer and the contractor, from design stage to construction stage. (Smallwood, 2019).

Stage 2: Concept and Feasibility

The design of the project is refined at the concept and feasibility stage. The project budget and project timelines are progressively elaborated at this stage. Project budgets and project timelines have an impact on H&S performance. H&S management should, therefore, be factored in when project budgets and project timelines are determined. Literature indicates that if H&S is not planned for, it will be de-prioritized when there's increased pressure to meet timelines and deadlines as well as increased pressure to deliver within budget (Teumo Custo, Teumo Custo & Buttigieg, 2019) (Okorie, et al., 2014).

Stage 3: Design Development

H&S management should further be included in the design development stage, where the elimination of risks and/or minimising of risks are

prioritized in the design. Additional risks that can not be eliminated and minimised can then be planned for in accordance with the client's design specification and H&S specifications (Smallwood, 2019)

Stage 4: Tender documentation and procurement

Literature indicates that when a client prioritises H&S, it will be included and planned for in the tender documentation and procurement stage. H&S should be allowed for in the project costs as per the client's design and H&s specification, with that budget being explicitly indicated in the bills of quantities for tendering.

Secondly, contractor pre-qualification can be utilised to ensure that any potential contractors are equipped to meet the clients H&S objectives. Criteria such as historical H&S performance of contractors, H&S management plans, as well as H&S competencies of the contracting team can be used as criteria to eliminate contractors that do not meet the client's requirements (Smallwood, 1999; Smallwood & Emuze, 2014).

Wells & Hawkins (2018) advised that although the cost of H&S in the tender bills may inflate the tender costings received, this will off-set the project costs in the long run. The reduced likelihood of H&S incidents will result in decreased project disruptions due to injuries, as well as increased productivity by the work force, thereby saving the client time and money.

Stage 5: Construction documentation and management

H&S management should continue at the construction management stage, as is currently the norm. Construction timelines should accommodate H&S management. In the instance where project timelines are tight, with increased pressure for delivery of the project, the likelihood of safety incidents is increased (Bosak, Coetsee & Cullinan, 2013). Management should also be seen by front line workers, as indicated by Bosak, Coetsee and Cullinan (2013) and Teumo Custo, Teumo Custo and Buttigieg (2019), to prioritize safety above production pressures. The client should

also continuously monitor contractor compliance with the H&S requirements as stipulated in prior project stages (Smallwood, 2019).

Stage 6: Project Close-out

H&S management should be included in the project close-out stage, with a review of all the project H&S plans and performance matrices thereof, including a review of the potential incidents and near misses, to collate learnings on the leading and lagging indicators.

Project costs should also be reviewed to understand the costs associated with H&S on projects, this will help in determining how these costs can be optimised in future projects. Learnings attained from post project close-out processes can then be applied in future projects of a similar nature.

5.5 How could these factors be rectified within the standard construction contracts frameworks?

The survey feedback indicated that the current provisions in the contract need to be reviewed and amended:

- more direct and explicit reference to management of H&S, revisions in the contracts themselves that place specific obligations on the contractor and the client to ensure that H&S is proactively maintained on site;
- explicit specification of the minimum H&S requirements for implementation by the contractor, e.g., toolbox talks, safety personnel on site, development of task-specific H&S training to increase risk awareness of contractor team on site;
- explicit specification of the minimum H&S requirements to be implemented by the client, e.g., hands-on oversight of H&S in construction activities to demonstrate leadership's involvement at site level, as well as development of organizational safety culture imperatives, which should be added as an addendum to the contract;

- explicit descriptions of the initiatives to be implemented jointly by both the client and the contractor, e.g., H&S inspections and audits, monitoring and tracking of the identified hazards, leading indicators, and lagging hazards; and
- explicit detailing of consequence management measures and penalty clauses for non-compliance with the above H&S provisions, for both contracting parties.

The above recommendations should be included in the H&S provisions and aligned to what the literature has indicated. Fear of prosecution and penalties for non-compliance with legislation are motivators to ensure compliance (Heerden, Musonda & Okoro, 2018; Löfstedt, 2011).

5.6 Additional measures to proactively improve H&S performance on site

One of the key differences in themes identified between the responses of the two population groups is that one set of responses was worker-centric and referred to risk raised by unsafe work practises and unsafe worker behaviour. The other referred to the client's leadership approach to H&S management (Okorie, Fidelis Emuze & Wyk, 2014). The first group places the responsibility for H&S management on the worker, and the other group recognises H&S as an element to be prioritized by management using a top-down approach. The latter is aligned to various studies that indicate safety management as an exercise implemented from the top and filtered downwards to the rest of the organisation and the work force (Teumo Custo, Teumo Custo & Buttigieg, 2019).

Musonda, Pretorius and Haupt (2012:p. 95) conclude that the demonstration of client commitment to management of H&S will have a positive influence on H&S performance. Musonda, Pretorius and Haupt (2012) specify mechanisms that demonstrate client commitment to management of H&S. These mechanisms include:

- having programmes to monitor and analyse H&S implementation,
- having clear H&S goals,

- including management of H&S in all contracts,
- conducting regular performance reviews of H&S,
- demonstrating a positive H&S attitude,
- actively promoting H&S to workers in the organisation as well as to contracted parties,
- providing adequate resources (including financial) to implement H&S,
- setting up incentives to promote good H&S behaviours,
- actively monitoring H&S programmes and implementing assurance activities to ensure compliance,
- attending H&S meetings on site,
- conducting H&S inspections and audits, and
- participating in incident investigations.

The above improvement mechanisms and recommendations allude to the development of a H&S management systems as defined by ISO 4500 (Project Committee ISO/PC 283, 2018). According to literature review, implementation of the above recommendations, creates a need for more robust, proactive, assurance activities to measure performance and monitor progress on compliance with the stipulated H&S requirements (Emuze and Smallwood, 2018). This can be extended to include measurement of compliance with H&S legislation and H&S policies at an organisational level and at on-site project levels. Monitoring actual performance with pre-defined requirements one of the most effective ways of ensuring compliance with the stipulated objectives (Project Committee ISO/PC 283, 2018) (Love, et al., 2015).

One of the common themes in the research responses was references to safety awareness campaigns and training in order to equip workers with the necessary skills to effectively identify and manage hazards. Proper training is required to adequately address the knowledge gaps that exist. Effective training empowers workers to manage hazards identified prior to commencement of works and

hazards identified when completing work tasks, as stated by Mushayi, Deacon and Smallwood (2018), and Othman (2012).
In summary, research indicates that continuous enhancement of competence of all participants in the construction process will result in the reduction of error-likely situations when undertaking construction activities. Competence in this regard, extends to experience, knowledge, skills, behaviour and performance goals.

Smallwood (2015) and the CIDB (2008)indicate that poor H&S performance is due to a lack of management commitment, inadequate supervision, inadequate H&S training.

Chapter 6: Conclusion

This study aimed to determine what is the relationship between the choice of standard-form construction contract and compliance with H&S legislation. A qualitative research approach was adopted for the data collection, using questionnaire surveys based on the grounded theory approach and utilising purposive sampling. Content analysis was adopted for the analysis of the qualitative data.

Through analysis of the research findings, it can be concluded that there is no relationship between the choice of standard-form contract and compliance with H&S legislation. Actual practices in the industry indicate that there is no perceived relationship between choice of standard-form contract and compliance with H&S legislation.

Through review of literature and analysis of the research results, this study concludes that the choice of standard-form contract is not an effective method to ensuring compliance with H&S legislation. Furthermore, the choice of the standard-form construction contract to be utilised on a project is not indicative of the client's efforts to ensure compliance with H&S legislation; this is because compliance with H&S legislation is currently not a consideration when determining which standard-form construction contract is to be utilised in construction projects. The key factors that determine which of the standard-form construction contracts is to be utilised in projects, is familiarity with the type of standard-form contract, as well as the project scope.

The findings of the study indicate that the current H&S provisions in the standard-form construction contracts are not effective in aligning the construction project with H&S legislation. These findings highlight scope for improvement of H&S provisions in the standard-form construction contracts. These H&S provisions need to be reinforced by being more descriptive on the obligations of both the client and the contractor, to ensure compliance with H&S legislation. The

elimination of ambiguity on the standard-form contracts will make it easier to enforce the contractual H&S obligations, this will contribute towards improving H&S performance on construction sites.

Through review of literature and analysis of the research results, the findings of the study indicate that the choice of construction contract is not indicative of the client's efforts to ensure compliance with H&S legislation, and that client's commitment to compliance with H&S management and improvement of H&S performance can be achieved through the prioritisation of H&S management in construction projects as well as through more active involvement from the construction client in managing H&S performance on site. This includes increased focus by the client on H&S management throughout the project life cycle, and not only at the construction phase, as well visible leadership by the client in all matters pertaining to H&S management on site. The increase in priority of H&S management and an increased H&S commitment by the client allude to the implementation of a H&S management system by the construction client. These findings highlight the requirement for development of a H&S management system by the construction client. A H&S management system will define and stipulate the H&S legislation and H&S requirements that all construction projects should meet. The H&S management system will also detail how H&S performance is to be measured, how progress on compliance with the stipulated H&S requirements, as well as compliance with stipulated H&S legislation, is to be measured, as well as provide guidelines for remediating any deviations and shortfalls with all stipulated H&S requirements and H&S legislation. Additionally, literature review indicates that implementation of an H&S management system will create a positive safety culture and a positive safety climate in the organisation, which in turn will lead to an improvement in H&S performance.

Recommendations arising from the study are for improvement of the H&S provisions in the standard-form construction contracts by the various authoritative

industry bodies that draft the standard-form contracts. The H&S provisions within the standard-form contracts must be more explicit and prescriptive of the obligations of both the client and the contractor, to ensure compliance with H&S legislation, thus improving H&S performance on construction sites.
Additional recommendations are for the construction client to implement an H&S management system, as this will clearly outline all guidelines and processes for ensuring that project performance is in accordance with all the client's H&S policies, project H&S requirements, H&S provisions in the construction contract, and H&S legislation.

Suggestions for future research are for this particular study to be conducted on a larger scale, since the limited population sample does not allow for broad generalisations; for the study to be extended to a wider selection of construction industry participants, including more project consultants and contractors, in order to get a wider range of perspectives on the effectiveness of the standard-form construction contract as a tool to ensure compliance with H&S legislation and improve H&S performance on construction sites.
It is also suggested that future research in this field of study, employ a change in the data collection strategy to face-to-face methods such as interviews and focus groups, in order to enable deeper probing of participants views through the use of leading questions.

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Appendices

Appendix 1: Questionnaire 1 (Construction law professionals -Attorneys)

Research Title:

The relationship between choice of construction contract and compliance to Health and Safety Legislation: A perceptive study of Johannesburg-based construction law professionals.

Please note the following:

- **Participation in this interview is voluntary and anonymous.**
- **Interview responses and feedback will be treated with the utmost confidentiality.**
- **Interview responses and feedback will be used solely for research purposes.**

a. Standard-form Constructions Contracts herein referred to:

- JBCC [Principal Building Agreement (Edition 6.1, Mach 2014)]
- FIDIC Red Book [Conditions of contract for Construction (1st Edition, 1999)]
- GCC [General Conditions of Contract for Construction Works (3rd Edition, 2015)]
- NEC3 [Engineering and Construction Contract (April 2013)]

b. Health and safety Legislation herein referred to:

- Occupational Health and Safety Act 1993 (Construction Regulations 2014)

RESEARCH INTERVIEW QUESTIONS:

1. Highest Qualification

☐ Bachelor of Laws (LLB) or similar ☐ Bachelor of Laws (Hons) or similar ☐Master of Laws or similar ☐PhD or similar

2. Industry experience in Construction Law

☐ 1-5 years ☐ 6-10 years ☐11-15 years ☐16 years and more

3. Type of construction projects

☐ Private sector ☐ Public sector ☐Both of the above

4. Kindly provide a brief background of your industry experience.
5. Kindly indicate the level of familiarity of the 4 standard construction contracts. (Namely: the JBCC, FIDIC, NEC3 and GCC).

JBCC (PBA): ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None	**NEC 3 (ECC):** ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None
GCC: ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None	**FIDIC (Red Book):** ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None

6. Kindly indicate the years of experience in working with the various types of contracts.

JBCC: ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more	**NEC 3 (ECC):** ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more
GCC: ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more	**FIDIC (Red Book):** ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more

7. In your opinion, which contract do you think has more effective clauses pertaining to compliance to H&S legislation? Position 1 being the most effective.

☐JBCC (PBA) ☐NEC3 (ECC) ☐GCC ☐FIDIC (Red book)

8. With reference to your response above - Why do you think that is so?
9. Kindly rate the effectiveness of the other H&S clauses in the remaining contracts.

	Very Poor	Poor	Average	Good	Very Good
JBCC (Principal Building Agreement)					
NEC3 (ECC)					
GCC					
FIDIC (Red Book)					

10. With reference to your response at above- Why do you think that is so?
11. How do you think the above ratings of effectiveness can be improved?
12. Do you think choice of construction contract on a project is an indication of the client's approach to management of health and safety performance? Select the box that matches your view most closely.

☐Strongly agree. ☐Mildly agree. ☐Neither agree nor disagree. ☐Mildly disagree. ☐Strongly disagree.

13. With reference to your response at above- Why do you think that is so?
14. In your opinion, what measures can be proactively implemented to improve construction H&S performance on construction sites, and thus curb the high construction incident and accident statistics?
15. Do you have any closing comments, suggestions or recommendations?

Thank you for your participation.

Appendix 2: Questionnaire 2 (Construction contract managers)

Research Title:

The relationship between choice of construction contract and compliance to Health and Safety Legislation: A perceptive study of Johannesburg-based construction law professionals.

Please note the following:

- **Participation in this interview is voluntary and anonymous.**
- **Interview responses and feedback will be treated with the utmost confidentiality.**
- **Interview responses and feedback will be used solely for research purposes.**

a) Standard-form Constructions Contracts herein referred to:

- JBCC [Principal Building Agreement (Edition 6.1, Mach 2014)]
- FIDIC Red Book [Conditions of contract for Construction (1st Edition, 1999)]
- GCC [General Conditions of Contract for Construction Works (3rd Edition, 2015)]
- NEC3 [Engineering and Construction Contract (April 2013)]

b) Health and safety Legislation herein referred to:

- Occupational Health and Safety Act 1993 (Construction Regulations 2014)

RESEARCH INTERVIEW QUESTIONS:

1. Highest Qualification

☐ Bachelor's degree or similar ☐ Honours degree or similar ☐Master of Laws or similar ☐PhD or similar ☐Please specify field of study:_____

2. Industry experience in Contract Management

☐ 1-5 years ☐ 6-10 years ☐11-15 years ☐16 years and more

3. Sector of construction projects

☐ Private sector ☐ Public sector ☐Both of the above

4. Kindly provide a brief background of your industry experience.

5. Kindly indicate the level of familiarity of the 4 standard construction contracts. (Namely: the JBCC, FIDIC, NEC3 and GCC).

JBCC (PBA): ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None	**NEC 3 (ECC):** ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None
GCC: ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None	**FIDIC (Red Book):** ☐Very Good ☐Good ☐Reasonable ☐Slight ☐None

6. Kindly indicate the years of experience in working with the various types of contracts.

JBCC: ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more	**NEC 3 (ECC):** ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more
GCC: ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more	**FIDIC (Red Book):** ☐1-5 years ☐5-10 years ☐11-15 years ☐16 years and more

7. In your opinion, which contract do you think has more effective clauses pertaining to compliance to H&S legislation? Position 1 being the most effective.

☐JBCC (PBA) ☐NEC3 (ECC) ☐GCC ☐FIDIC (Red book)

8. With reference to your response above - Why do you think that is so?
9. Kindly rate the effectiveness of the other H&S clauses in the remaining contracts.

	Very Poor	Poor	Average	Good	Very Good
JBCC (Principal Building Agreement)					
NEC3 (ECC)					
GCC					
FIDIC (RedBook)					

10. With reference to your response at above- Why do you think that is so?

11. How do you think the above ratings of effectiveness can be improved?
12. Do you think choice of construction contract on a project is an indication of the client's approach to management of health and safety performance? Select the box that matches your view most closely.

☐Strongly agree. ☐Mildly agree. ☐Neither agree nor disagree. ☐Mildly disagree. ☐Strongly disagree.

13. With reference to your response at above- Why do you think that is so?
14. In your opinion, what measures can be proactively implemented to improve construction H&S performance on construction sites, and thus curb the high construction incident and accident statistics?
15. Do you have any closing comments, suggestions or recommendations?

Thank you for your participation.