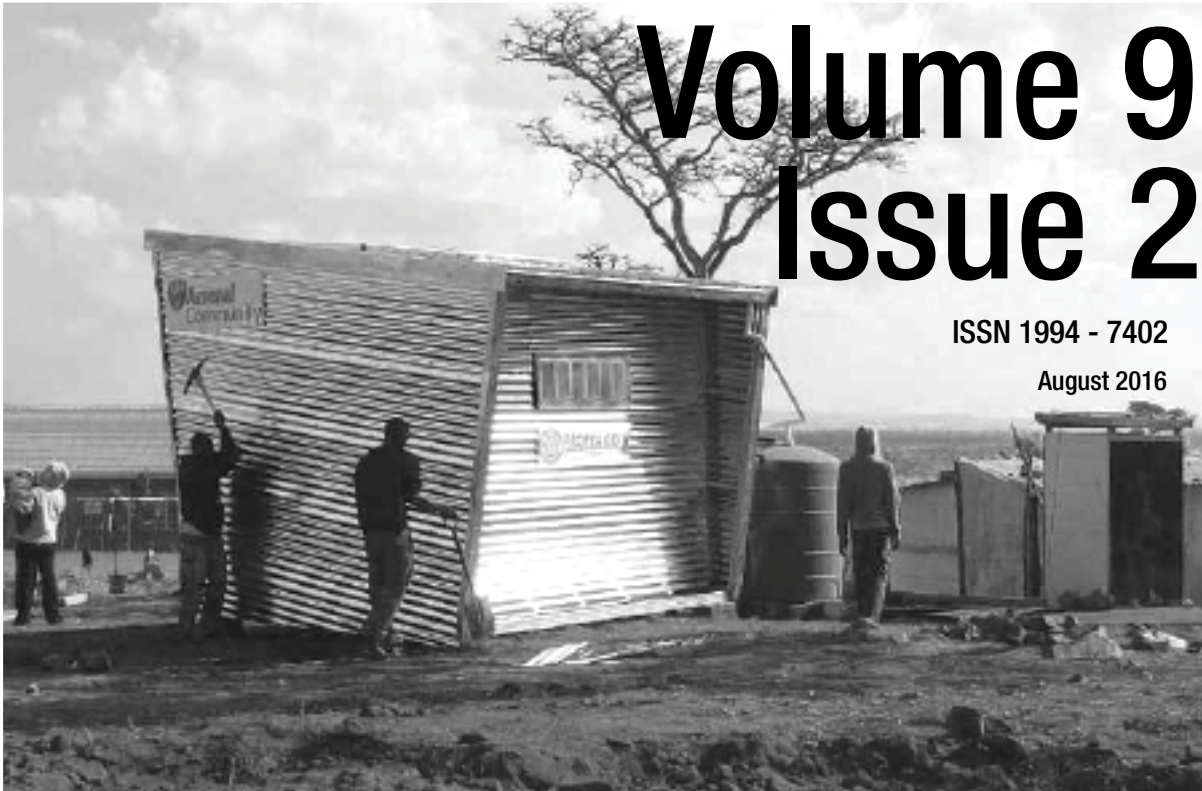


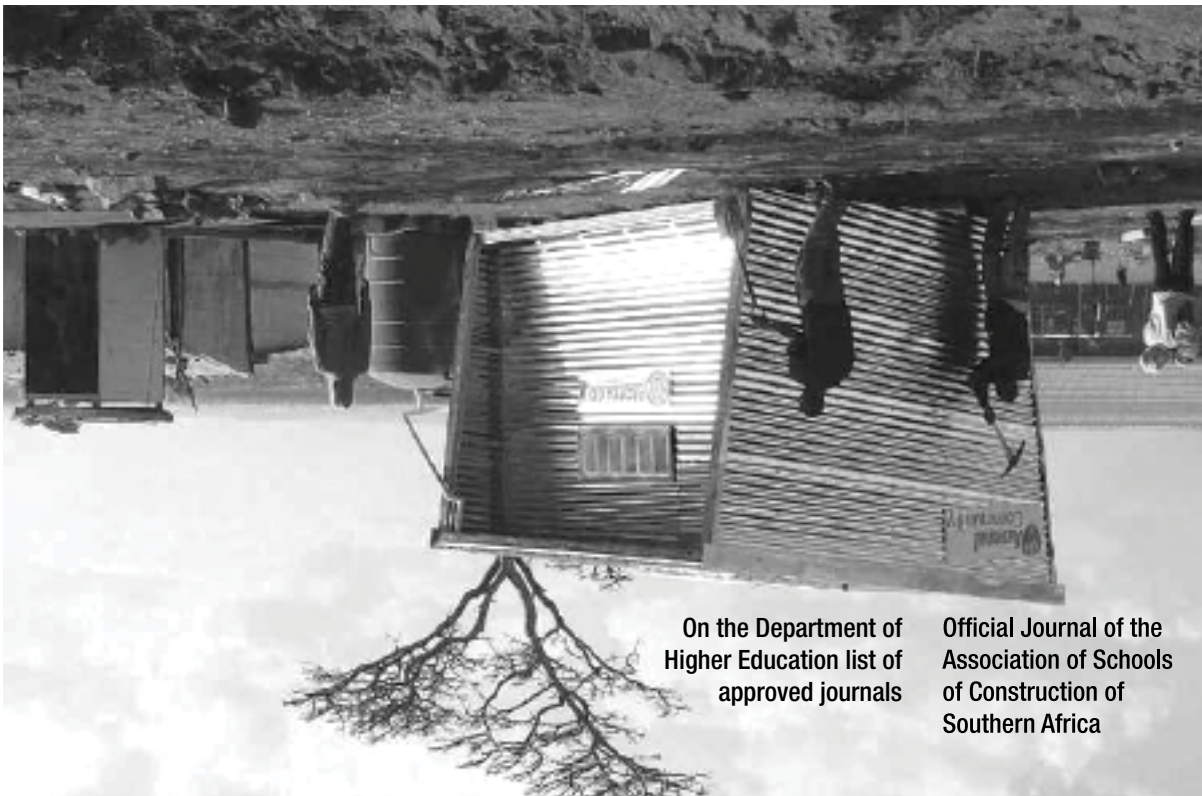
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EXPLORING PERCEIVED IMPLEMENTATION ISSUES OF THE PERMIT-TO-WORK REQUIREMENT OF THE CONSTRUCTION REGULATIONS IN SOUTH AFRICA

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PURPOSE:

“... the reported research project investigated the implications of the 2014 Construction Regulations that replaced the 2003 regulations in South Africa.”

ABSTRACT

Purpose

Regulations are designed to encourage changes in individual outcomes. Such outcomes could be changes in conditions of work that leads to reduced accidents, injuries, and fatalities in the construction industry. Following this premise, the reported research project investigated the implications of the 2014 Construction Regulations that replaced the 2003 regulations in South Africa.

Methodology

With exploratory sequential mixed method research design that obtained the perceptions of project actors that are active in the industry, the study examines the contents of the regulations; the intentions of the permit-to-work requirement of the regulations; and the ability of the Department of Labour (DoL) to enforce compliance. The exploration focuses on the procurement system of the national Department of Public Works (DPW) in South Africa as a major client of the industry.

Findings

The study shows that though the interviewees were relatively familiar with the revised regulations, their ability to implement the permit-to-work requirement is a concern. The concerns focus on the capacity of the DoL to process permits when required. This perception indicates that there would be cost implications for project actors when implementing the permit-to-work requirement and this cost factor could delay project initiation, planning, and delivery.

Value

The issues that have been highlighted have to be addressed in practice so that the health and safety (H&S) improvement intentions of the revised regulations would not be marginalised.

Keywords: Client, compliance, construction, health and safety, regulations, South Africa

INTRODUCTION

The National Development Plan lists the ten critical actions to be achieved by 2030 in South Africa has been highlighted¹. Number seven on the list is public infrastructure investment at 10% of the gross domestic product (GDP). The investments, which are to be financed by tariffs, taxes, and loans, will focus on transport, energy, and water. The infrastructure plan indicates that the construction industry will play a significant role in the infrastructure investment space in South Africa in this decade and beyond. However, many project sites are productive workplaces that are dangerous if people do not follow H&S procedures². While there have been insinuations that fatalities are linked to the 'high price' environment – chasing profits causes accidents that result in injury and death³ – the reality is that improving health and safety (H&S) is a profit incentive⁴. This incentive is a reason for clients, designers, contractors, regulators, and everyone involved in the delivery of construction project to work without the fear of harm in an environment that is noted for accidents and injuries⁵. Harm through injuries and fatalities has made construction H&S the focus of industry stakeholders and role players in South Africa⁶. For example, the H&S features that are to be designed into a project must be identified so that the completed facilities will meet the objective of being a healthy and safe place for its users².

To turn the tide of injuries and fatalities in construction, regulations and legislation are used by most countries in industrial systems. The same approach is adopted in South Africa where clients are mandated to take up their responsibilities regarding construction

H&S. Construction firms, the government, and unions are showing increased concern on H&S, which is essential if the industry is to remain sustainable in the long run³. The role of clients is important as the construction process starts with a client's decision to procure a facility or infrastructure to satisfy a particular need⁷.

Description of the research question

The identification of gaps in the 2003 edition of the Construction Regulations led to the revision of the regulations in South Africa. The revised regulations were promulgated in 2014 with clear intentions to bridge the identified gaps. One reason for the gaps is the lack of consistent and uniform standards of compliance with H&S. Also, contractors perceive regulations as an additional burden with which they have to conform, and which give rise to unnecessary costs⁶. In an attempt to avoid this perceived extra cost, contractors tend not to comply fully with H&S regulations. For instance, contractors are not compelled by the client to notify the DoL before commencing projects where required. The use of qualified H&S agents or officers is deemed to be a way to improve compliance (this is an example of unnecessary cost from the viewpoints of contractors), and the revised regulations is an attempt to promote this perception. The non-compliance of contractors has now been stopped with the introduction of the permit-to-work requirement in the revised regulation. The central research question is: *'What are the issues that could work against the implementation of the permit-to-work requirement of the revised Construction Regulations in South Africa.'*

The research assessed the level of readiness by the DPW regarding the permit-to-work requirement of the revised regulations. Table 1 summarizes the scope and application of the Construction Regulations 2014. The study assessed the existence of issues that could thwart the execution of the permit-to-work requirement while also advancing possible ways of addressing them so that negative impact on the procurement of projects by the national DPW in South Africa could be avoided. Given the limits placed on the findings of the study regarding sampled perceptions, the research is exploratory in nature. The study explored the topic because the issues around the implement of the permit-to-work requirement are not widely known at the time of the field work. Primarily, the study examined the ways in which survey results resonate with interview results

Understandings from the reviewed literature

The study was conducted against the background of the introduction of the newly promulgated Construction Regulations (2014) in South Africa. The Construction Regulations 2014 5(1) (a) requires that a client prepares a baseline risk assessment for an intended construction work project, while section 9(1) states that a contractor must, before the commencement of any construction work and during such work, have risk assessment performed by a competent person appointed in writing [8]. This clause indirectly calls for the client to use a specialist H&S resource to compile H&S plan, specifications and risk assessment for the relevant project so that complete compliance could be promoted.

These new requirements are necessary as the construction industry in South Africa is known to have an unacceptably high level of injuries and fatalities, which result in considerable human suffering. The findings of the literature review reveal that construction contractors do not comply fully with Construction Regulations in South Africa⁹. The main implication of the findings for the different stakeholders involved in construction is non-compliance with H&S regulatory requirements by contractors because of cost implications¹⁰. As a consequence, the literature suggests that H&S in South African construction lags behind that of developed countries¹¹.

To remedy the situation, contract award mechanism is used by clients to promote H&S management. It has been suggested that clients are in a unique position to drive H&S performance improvement by prequalifying contractors based on H&S practices⁹. The motivation for a change lies with clients because of their influence on appointed contractors. The H&S culture of clients influences the H&S performance of contractors and as such clients should (1) have programmes to monitor and analyse H&S implementation; (2) have clear project H&S goals; (3) schedule H&S as a key contract prequalification criterion for all parties to be involved in a project; (4) schedule H&S in all contracts; (5) conduct regular H&S performance measurement; (6) have their own H&S committee; and (7) conduct hazard identification and risk assessments¹². Because individual regulation will often comprise a complex chain of interventions, interactions, and impacts, complying with the H&S regulations involves upfront costs, which should not take precedence over the wellbeing of construction operatives and the public¹⁰. In fact, compliance with the Construction Regulations has presented significant tests involving cost, compliance, and design and implementation capacity¹³. Clients such as the DPW should, therefore, reflect and base their practice upon the implementation H&S regulations in the construction industry.

In brief, the Construction Regulations (2003) have had a positive impact on the sector despite the need for amendments to promote optimum H&S throughout all phases of a project, in particular during the concept, initiation, and detailed design phases¹⁴. The Construction Regulations (2003) have had a desired 'upstream,' 'midstream,' and 'downstream' impact⁹. Notwithstanding this, the Construction Regulations (2003) have been reviewed and revised to produce the 2014 Construction Regulations, which forms the basis of this study. The Construction Regulations 2014 3(6) state that a client must ensure that the principal contractor keeps a copy of the construction work permit contemplated in sub-regulation (1) in the Occupational H&S file for inspection by an inspector, the client, the client's authorised agent, or an employee.

RESEARCH METHODOLOGY

In terms of research design, the reported study utilised a sequential mixed method research design, which is aimed at cancelling the weaknesses of both qualitative and quantitative method of research¹⁵. The review of the literature resulted in the formulation of both open and closed ended questions used in the questionnaire that was distributed to building and civil engineering contractors. The contractors were active Free State-based CIDB grade level 6-9 civil engineering (CE), and general building (GB) contractors. The Free State-based CIDB grade level 6-9 contractors were 112 in terms of population (51 (GB) + 67 (CE)). Given the adoption of face-to-face and onsite distribution of the questionnaire, a limited respondents took part in the survey. The contact mode of questionnaire distribution was utilised to enhance the response rate within the group. The questionnaire was distributed to a sample of 28 contractors in the areas of CE (14) and GB (14) contractors. A response rate of 71.4% was achieved with analysed questionnaires, which were 20 in number. As opposed to random sampling technique used for within population generalisation purposes, the selection of the survey participants was based on informed participation and familiarity with issues concerning the regulations. This approach conforms to the purposive sampling method¹⁶.

The initial approach involved identifying and profiling the target respondents. The survey (instrument) posed questions, which allowed participants to choose options ranging from disagreement to agreement. The questions were structured to be suitable for construction stakeholders who participated

in construction projects at various levels. The majority of the questionnaires were administered on construction sites, while a few of them were given to contractors in their offices. All the contractors gave consent before questionnaires could be delivered. The questionnaire consisted of ten questions, each with several sub-questions, and referred to the implications of the Construction Regulations (2014) about the DPW procurement system.

Open-ended semi-structured questions were also developed to guide face-to-face interviews that followed the questionnaire survey. In analysing the textual data that emerged from the interviews, the inductive data analysis approach was used¹⁷.

In other words, the study builds patterns from the bottom up by arranging the unit of information. Codes and categories were sorted, compared, and contrasted until analysis produced no new codes or categories and all the data were accounted for in the core categories of the data. Hand-written transcripts were read several times while audio-recordings were listened to several times to obtain an overall comprehension of the findings. Both hand-written and audio records were typed with precise information being recorded. From each transcript, significant phrases or sentences that pertain directly to the lived experience of interviewees were identified; data were reduced to themes and quotes, and relationships among the categories were also noted.

Table 1: Summary of scope and application of the Construction Regulations 2014

The Construction Regulations 2014
OCCUPATIONAL HEALTH AND SAFETY ACT, 85 of 1993
Scope of application
<p>2. (1) These Regulations are applicable to all persons involved in construction work.</p> <p>(2) Regulations 3 and 5 are not applicable where the construction work carried out is in relation to a single-storey dwelling for a client who intends to reside in such dwelling upon completion thereof.</p>
3. Application for construction work permit.
<p>3. (1) A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work if the intended construction work will:</p> <ul style="list-style-type: none"> (a) exceed 180 days; (b) will involve more than 1800 person days of construction work; or (c) the works contract is of a value equal to or exceeding thirteen million rand or Construction Industry Development Board (cidb) grading level 6. <p>(2) An application contemplated in sub-regulation (1) must be done in a form similar to Annexure 1.</p> <p>(3) The provincial director must issue a construction work permit in writing to perform construction work contemplated in sub-regulation (1) within 30 days of receiving the construction work permit application and must assign a site specific number for each construction site.</p> <p>(4) A site specific number contemplated in sub-regulation (3) must be conspicuously displayed at the main entrance to the site for which that number is assigned.</p> <p>(5) A construction work permit contemplated in this regulation may be granted only if:</p> <ul style="list-style-type: none"> (a) the fully completed documents contemplated in regulation m5(1)(a) and (b) have been submitted; and (b) proof in writing has been submitted— <ul style="list-style-type: none"> (i) that the client complies with regulation 5(5) (ii) with regard to the registration and good standing of the principal contractor as contemplated in regulation 5(1)(j); and (iii) that regulation 5(1)(c), (d), (e), (f), (g) and (h) has been complied with. <p>(6) A client must ensure that the principal contractor keeps a copy of the construction work permit contemplated in sub-regulation (1) in the H&S file for inspection by an inspector, the client, the client's authorised agent, or an employee.</p> <p>(7) No construction work contemplated in sub-regulation (1) may be commenced or carried out before the construction work permit and number contemplated in sub-regulation (3) have been issued and assigned.</p> <p>(8) A site specific number contemplated in sub-regulation (3) is not transferrable.</p>
Source: Republic of South Africa. (2014) ⁸

The eight interviewees were selected because they are active in the industry. The built environment professionals were approached as they are engaged in DPW projects in various capacities. Such capacities include Principal Agents by being the client's first line of contact, being crucial regarding H&S compliance in the construction industry, and overseeing management of construction projects on behalf of clients. They also design, document, and monitor construction projects, therefore their role in the total project implementation requires that they work with other appointed contractors in the implementation of the Construction Regulations (2014). The DoL was approached and a representative interviewed by being the regulatory authority to enforce the permit-to-work system of the Construction Regulations (2014). The voice of the regulator, in this case, the DoL, was found to be vital and informative.

DATA ANALYSES AND INTERPRETATIONS

Questionnaire

For the questionnaire survey, a 5-point Likert scale measurement was used to obtain the opinions of the respondents and to analyse the results. In terms of analysis and interpretation of mean scores (MSs), the respondents were asked to rate their perceptions relative to the Construction Regulations (2003) and the Construction Regulations (2014) on: 1 = Strongly Disagree; 2 = Disagree ; 3 = Neutral; 4 = Agree; 5 = Strongly agree. An 'unsure' option was provided in each Likert scale question so that respondents are not compelled to provide responses to questions in which they have limited knowledge and understanding. Microsoft Excel was used to compute descriptive statistics for the study. The spreadsheet facilitated the capturing and analysis of the data obtained from the completed questionnaires. The Microsoft Excel Ranking function was also used to compute the rank of MSs recorded in the data analysis. The limited responses and sample favor non-parametric and descriptive statistics that has been used in the study.

Face-to-face Interviews

For the face-to-face interviewees, the principal researcher served as a contact for the interview. The respondents were reminded of the voluntary nature of participation as well as the ethics of research regarding confidentiality. The interviews were tape recorded and transcribed verbatim with the permission of the interviewees who were eight in number. The eight interviewees include a representative of the DoL who is a Chief Director, an Assistant Director in the DPW, a Specialist H&S inspector, a professional Architect, a professional Quantity Surveyor, and one professional Civil Engineer. All the interviewees are involved in DPW projects in the Free State province. They are also well informed about the implementation of the Construction Regulations^{8,18} and its impact on construction H&S in South Africa.

RESULTS

Questionnaire responses

The respondents were asked to indicate the type of organisation they work for by responding to a choice of two pre-selected types of construction industry development board (CIDB) contractors, namely general building (GB) and civil engineering (CE) contractors. The responses show that nine respondents, which constituted 45% of the interviewees selected GB, while another nine (45%) selected CE. When asked to indicate the number of years they have been involved in construction, the majority of the respondents have been involved for 6-10 years, while the categories 11-15 years and 21-25 years have been in the industry for three years. Furthermore, when asked to indicate the highest formal qualification, only six respondents did not hold a post-Matric qualifications and then, about gender, three of the respondents were female. The majority of the interviewees have

a formal tertiary education. A further demographic information shows that majority of the respondents were found to be between the ages of 31 and 40 years, while only one respondent was below the age of 25 years.

Questionnaire results

Table 2 to 5 has been tabulated regarding the descriptive analysis explained above. When asked whether the Construction Regulations should promote compliance with H&S in the industry, the respondents strongly agreed that the Construction Regulations should improve H&S conformity in the industry; and they also agree that industry role players are relatively familiar with the Construction Regulations (2003) (Table 2). Their extent of concurrence aligns with the MSs of 4.63 and 4.17 shown in Table 2. In addition, the respondents agree that compliance with the Construction Regulations (2014) requires specific competencies, the Construction Regulations (2014) realised notable revisions and requirements, and industry role players are relatively familiar with the Construction Regulations (2003) and the permit-to-work system enforced by DoL in August 2015 is based on the Construction Regulations (2014). The respondents were neutral concerning the familiarity of project actors with the Construction Regulations (2014).

Table 2: Contractors' perceptions related to the Construction Regulations

Statement	MS	Rank
The Construction Regulations should promote H&S compliance in the industry	4.63	1
Industry role players are relatively familiar with the Construction Regulations (2003)	4.17	2
Compliance with the Construction Regulations (2014) requires specific competencies	3.89	3
The Construction Regulations (2014) realised notable revisions and requirements	3.77	4
Industry role players are relatively familiar with the Construction Regulations (2003)	3.75	5
Permit-to-work system to be enforced by DoL in August 2015 is based on the Construction Regulations (2014)	3.63	6
Industry role players are relatively familiar with the Construction Regulations (2014)	2.93	7

Table 3: Contractors' opinions regarding the permit-to-work system as applied in the Constructions Regulations (2014)

Statement	MS	Rank
Delayed project initiation has economic and social impacts on the community	4.50	1
DoL has engaged project actors on the implementation of the permit-to-work system	3.62	2
Permit-to-work could delay project initiation and planning	3.55	3
Awareness about the permit-to-work system to be enforced by DoL in August 2015 is high	2.94	4
Clients' deliverables are vulnerable to the requirements of the permit-to-work system	2.33	5

Table 3 indicates that the respondents strongly agreed that delayed project initiation has economic and social impacts on the community; the DoL has engaged project actors on the implementation of the permit-to-work system, and permit-to-work could delay project initiation and planning. Based on the concurrence, the respondents can be deemed to strongly disagree with the timing of the permit-to-work requirement of the Construction Regulations (2014). The two statements that achieved MSs below 3.00 are awareness about the permit-to-work system enforced by the DoL in August 2015, and clients' deliverables are vulnerable to the requirements of the permit-to-work system. The perception that delayed project initiation has economic and social impacts on the community received the highest MS in Table 3.

The respondents were asked to rate how they perceive the likely impact of the Construction Regulations (2014) on public sector procurement practices in South Africa. Table 4 indicates that the respondents strongly agree that the Construction Regulations (2014) has strengthened inclusive H&S roles and responsibilities for public sector clients while realising enhanced roles within a project team. The respondents also agree that the H&S competency level required for compliance with the Construction Regulations (2014) will influence procurement method choice and implementation. In this regard, they agree that design-by-employer procurement method would be the most affected by the permit-to-work requirement. However, the respondents appear to disagree with the proposition that design and build procurement method would be the hardest hit by the permit-to-work requirement.

Table 4: Contractors' perceptions regarding the impact of the Construction Regulations (2014) on public sector procurement practices in South Africa

Statement	MS	Rank
The Construction Regulations (2014) strengthened inclusive H&S roles and responsibilities for public sector clients	4.64	1
The Construction Regulations (2014) realises strengthened roles within a project team	4.53	2
H&S competency level required for compliance with the Construction Regulations 2014 will influence procurement method choice and implementation	4.12	3
Design-by-employer procurement method would be the most affected by the permit-to-work requirement	4.07	4
Design and build procurement method would be the most affected by the permit-to-work requirement	2.60	5

The respondents were asked to rate their concurrence with the education and training requirements of H&S regarding compliance with the Construction Regulations (2014). Table 5 indicates that the respondents strongly agree that continuous professional development (CPD) programs should be offered to enhance the understanding and implementation of the permit-to-work requirement in the short term. The table further shows that the respondents agree that professionals and workers who are responsible for the implementation of permit-to-work requirement of the Construction Regulations (2014) need specific learning related to implementation. In fact, the respondents were of the opinion that the permit-to-work requirement should form a module/topic in tertiary H&S subjects offered in South Africa in the long term.

Table 5: Contractors' perceptions regarding education and training requirements regarding compliance with the Construction Regulations (2014)

Statement	MS	Rank
In the short term, continuous professional development (CPD) programs should be offered to enhance the understanding and implementation of the permit-to-work requirement	4.72	1
Professionals and workers who are responsible for the implementation of permit-to-work requirement of the Construction Regulations 2014 need specific learning related to implementation	4.21	2
In the long term, the permit-to-work requirement should form a module / topic in tertiary H&S subjects offered in South Africa	4.05	3

Interview results

In addition to the questionnaire results, the study also obtained in-depth comprehensions through face-to-face interviews. The interviews addressed overall compliance with the Construction Regulations and the DoL enforcement of the Construction Regulations (2014). Interviewees were asked questions about their knowledge of the Construction Regulations, the impact of the Construction Regulations (2014) regarding client/contractor procurement issues, enforcement of compliance with the permit-to-work requirement, and education and training demands about H&S competency as elaborated in this section.

Familiarity with the Construction Regulations

When interviewees were asked to rate their familiarity with construction regulation, Respondent 1 perceives that his level of familiarity with both regulations (2003 & 2014) is advanced. He mentioned that he started work at the DoL in 2004, and has since been applying the regulations. He has also acquired experience and training concerning the 2003 Regulations. In contrast, Interviewee 2 indicates that he cannot say he is familiar with the regulations as he mentioned that it is one of those things that one comes across, but he never had a chance to go through the document itself. Interviewee 3 also said that she is not familiar with the regulations. Respondent 4, however, suggested that the 2003 version of the Construction Regulations was under-regulated whereas he finds that total 'over-regulation' is reflected in the Construction Regulations (2014). Interviewee 5 indicated that he is familiar with the 2003 and 2014 versions of the regulations. Respondent 7 stated that he has a sound level of familiarity with both versions of the regulations. Respondent 8 indicated that his level of familiarity with the 2003 Construction Regulations is low while he said he is more familiar with the 2014 Construction Regulations.

Awareness of the construction permit-to-work system

The knowledge level of the construction permit-to-work system was also asked in the interviews. In response, Interviewee 1 said he is aware of the new permit-to-work system. He further mentioned that DoL has a new organogram system that caters for the production of required permits. Interviewee 2 indicated that he does not know about the 2015 regulations, though he mentioned that he knows that for each construction site, the contractor needs to get a letter to inform the DoL of the project. Also that in every project that they undertake, they typically tell the contractor to notify the DoL. Interviewee 4 confirmed that he knows about the permit-to-work requirement and he opines that it is more a case of over-regulation. Respondent 5 also

confirmed that he is aware of the permit-to-work requirement. Respondent 7 mentioned that he is also mindful of the fact that they want to enforce the requirement, but he is not aware of how it will be implemented. Responding positively, Interviewee 8 said he is very conscious of the permit-to-work requirement.

Required competencies for Construction Regulations implementation

Regarding the required skills for the application of the regulations, Interviewee 1 stated that there are professionals that are needed regarding the Construction Regulations. A competent construction health and safety agent (CHSA) will be needed to draft a baseline risk assessment and specification on behalf of the client. He also mentioned that another key professional is a qualified construction manager who has the overall responsibility for management and supervision of the project on site. He further emphasized that a qualified construction health and safety manager (CHSM) or construction health and safety officer (CHSO) for the principal contractor must also be appointed. However, Interviewee 2 said communication on the required competency had not been achieved. Interviewee 4 had this to say: *"I give competence 50%"*.

Respondent 5 mentioned that if the consultants, the clients, and the contractor are not competent, the Construction Regulations will not work. Respondent 7 opined that competency in the country is a problem: he does not think South Africans have the required skills and that contractors are not well skilled. Interviewee 8 perceived that if architects continue to lack knowledge of Construction Regulations, and current design parameters are not in line with H&S, and also if contractors who have to implement the Construction Regulations as well as those who monitor compliance are inexperienced, then the problem with the required competency persists.

Influence of the Construction Regulations 2014 in the industry

Perceptions of the ability to the regulations to positively influence stakeholders in the industry were sought from the interviewees. In response, Respondent 1 mentioned that the Construction Regulations (2014) require the client, the principal contractor and key competent individual to take responsibility in a project. He said it would assist in the reduction of the number of fatal accidents on construction sites. He further mentioned that the role of the DoL had been strengthened; they now have more power regarding sanctioning responsible people. Interviewee 2 said he believes stakeholders will be influenced and mentioned that they raise the level of awareness of the clients and hold some discussions with the clients, telling them to set aside a budget for H&S.

Interviewee 4 opined that implementation would introduce increased costs. Interviewee 5 said he does not think implementation will have any influence; according to him, pre-contract issues will remain the same. While Interviewee 7 mentioned that there would be a positive impact, he anticipates project delays, and more paperwork. Interviewee 8 said that implementation would take some time and a lot of training: it needs stringent measures, and the DoL must carefully monitor non-conformance, otherwise the legislation would be meaningless.

Promotion of compliance to Construction Regulations

Compliance is a crucial matter for the success of any regulation. Based on the importance of conformity, the interviewees were requested to comment on how Construction Regulations will ensure that stakeholder complies with H&S requirements in the industry. Interviewee 1 said that the client key issues are the responsibility related to the application for a permit; that whoever they appoint has the capacity; that they have the funds to complete the job, and that they appoint a responsible person

to ensure compliance on the site on his behalf. The client will have to ensure H&S auditing, the availability of site-specific H&S specifications and baseline risk assessment. Regarding designers, he thinks their design must be less risky; take minimal risks; supply the client with risks that are attached to the design work in the form of a report, and ensure designs are safe. On principal contractors, he mentioned that they need to receive site-specific H&S specifications from the client, develop their own H&S plan in line with H&S specifications, appoint a competent construction manager, prepare a risk assessment by a qualified person, ensure all workers undergo medical fitness testing, appoint sub-contractor who will comply with legislation in the same way as they do, and finally notify the DoL of their intention to commence with the project. Interviewee 2 commented that,

"It boils down to cost for stakeholders, and obviously some of these things it is a bit of misunderstanding or misjudging from one party, we wish if they were all thought of during the project inception, then they could have been avoided, but at the end of the day they are not forming part of the inception, the implementation at a later stage couldn't come at a cost, most of the time the client is not interested."

Interviewee 3 says that before a designer shifts issues of H&S elsewhere, when a designer sees something that has an impact on H&S, he/she should raise it with the contractor. He believes only the principal-agent (PA) should handle matters of H&S, and that only a PA needs to pay attention to such. He mentioned that H&S is now main contractors' priority, since it is included in their tendering and they have to comply with it. They also have to give an H&S plan and a method statement. He said it is compulsory in their case, as they need to understand it and have a plan relating to how they are going to execute it. Interviewee 4 said clients, designers and principal contractors would comply with law. Respondent 5 had this to say:

"I don't know why they intended to involve the clients; I think occupational health and safety consultants must deal with the Construction Regulations and contractors. I don't think designers should be included in the Construction Regulations".

He agreed that principal contractors should be involved in promotion H&S, since it is their responsibility, and they are the people who have to comply with the law. Interviewee 6 opines that although clients are employers, since this regulation is meant for contractors, the client must be informed to comply. He mentioned that designers (i.e. architects and engineers) should only be aware of the requirement since they rely on H&S specialists to enforce the regulations. He said principal contractors should be fully informed to comply with the regulations.

Interviewee 7 gave his view by saying :

"I don't think clients are that concerned with regulations, they are not really interested. We have to be careful when we design, and think about how the contractors will build our designs; we have to think through contractors' capability. I think the more the principal contractor is experienced, the more they can conform and become more responsible, and they should belong to associations that can check on them."

Interviewee 8 is certain that the requirement for a client to appoint a registered H&S agent is a point of difference from the previous regulations. He also opined that designers have to become competent in H&S matters regarding documentation and designs whereas contractors will have to absorb the cost of training existing workers, hiring registered H&S professionals and generally improving the compliance of their activities with the regulations.

Cost associated with the implementation of Construction Regulations 2014

Interviewee 1 confirmed that there would be extra charge for project stakeholders regarding implementing the new inclusions in the Construction Regulations. For the client, he opined that the appointment of H&S agents had cost implications and whenever a project is delayed or halted owing to the lack of permit-to-work, it will cost the client money. This applies to the contractors as well regarding delivery time for projects. The designers also have to become more mindful of their design as they will be questioned if a design poses risks to workers on site. Interviewee 2 also confirms that clients will incur costs during the implementation, and opined that clients are likely to transfer such costs to contractors owing to fruitless expenses that are likely to result from the first-hand experience of the expenses thereof. Moreover, he believes that client-related costs may relieve contractors of the financial burden, while he seems to be undecided when it comes to designer costs implications.

Interviewee 4 offered his opinion by saying *"There shouldn't be costs, but there will be costs"*.

Respondent 5 confirmed that there would be many overall cost implications for all project stakeholders. Respondent 7 also confirmed the perceived additional cost for project stakeholders, even though he is not sure whether the DoL will charge the client for processing a permit. In his opinion, other expenses may arise from the employment of experienced people and increased attendance of project meetings. Interviewee 8 contended that he could not pre-empt, mainly because if people are being told timely, then they must plan well.

Implementation of the permit-to-work requirement

Seven open-ended questions were asked regarding the implementation of the permit-to-work requirement of Construction Regulations 2014. The first question was about how it could be enforced. In responding to this question, interviewee 1 noted that no construction would be permitted to begin without the site-specific official number allocated to it. The prohibition notice should be served to the contractor to stop immediately. And if not displayed then, the DoL could issue a contravention notice, and the contractor would have to comply within specified time. Also, interviewee 1 commented that the procedure to follow would entail the issuance of a letter, which will acknowledge the permit request. Efforts should also be made to issue the number within 30 days. According to the interviewee, contractors must also insist on the first-page copy of their permit to be stamped as proof of submission. However, the issue of possible backlog in applications was flagged. Interviewee 1 noted that the DoL might experience delays from the non-availability or slow progress in the appointment of personnel to process permits. In particular, Interviewee 1 said:

"The proposed plan is to have a principal inspector per province who shall assess the H&S specifications, baseline risk assessment and costs, and make recommendations to the specialist inspector for granting the permit".

He also noted that technology could assist the DoL to overcome implementation challenges regarding speed and database maintenance.

Regarding proactive measures that could tackle resistance to regulatory changes, Interviewee 1 was of the opinion that the DoL would conduct information and advocacy sessions, targeted at the clients and principal contractors. According to him, the DoL will also strive to accelerate compliance levels by lobbying voluntary associations and legal councils regarding encouraging

their members to comply. Education and training are another key aspects that can impact compliance positively. The views expressed by the interviewees shows that interviewee 1 opines that the government wants to enhance H&S competency at the workplace to improve it regarding information received from clients and contractors. Respondent 2 noted that issues of H&S are more about public awareness and education. He believed that H&S must start at home, not in the workplace: people must refrain from making H&S a work situation. Interviewee 3 held the view that training is essential to afford them the necessary knowledge required for implementation of the regulations. She said that as the CHSA may be well knowledgeable, she is more concerned about contractors who may lack the necessary competency. Interviewee 4 indicated he has limited views.

Respondent 5 was of the opinion that accredited bodies are required to offer H&S training. Respondent 6 maintained that H&S is over complicated:

"the system must be simplified to involve all stakeholders and site workers".

Respondent 7 noted that skills development is an on-going challenge and that skills levels must be enhanced. Interviewee 8 said he is positive regarding H&S education and training, although he is of the view that additional training is needed to improve the comprehension of the details of the revised regulations.

DISCUSSION

Discussion on questionnaire results

The exploratory survey reveals that industry role players are relatively familiar with the 2003 Construction Regulations, which is aligned to the findings of the CIDB that the Construction Regulations are perceived to have had a widespread impact, and in particular, increased H&S awareness and greater consideration by project managers, and general contractors⁹. It also suggests that the Construction Regulations should promote compliance with H&S in the industry, and that compliance with the 2014 Construction Regulations requires specific competences. Also, CPD programs should be offered to enhance the understanding and implementation of the permit-to-work requirement.

The study also reveals that practitioners who are responsible for the implementation of the permit-to-work requirement of the 2014 Construction Regulations need specific learning. Relevant H&S education and training at all levels in the industry will empower people to make the important general and H&S contributions. This includes the tertiary education of all built environment disciplines. This study suggests that the permit-to-work requirement could form a module/topic in tertiary H&S subjects offered in South Africa, in the long term. The study suggests that the competency level required for compliance with the 2014 Construction Regulations will influence the procurement method choice and implementation. The study also suggests that permit-to-work could delay project initiation and planning, and that delayed project start has economic and social impacts on the community.

Discussion on interview results

The interview results reveal that the participants in this study are relatively familiar with Construction Regulations (2014). The interviewees are likewise aware of the permit-to-work requirement, and the importance of the regulations. The significance of awareness is highlighted by the CIDB, which reports that a pre-requisite for enhancing H&S management and leadership is knowledge of (1) H&S regulatory requirements and the responsibilities of various stakeholders; and (2) the tools and techniques that can be used to enhance construction H&S

performance⁹. The survey respondents and the interviewers were equally confident about the implementation of the Construction Regulations (2003) even though they accepted that perception that there would be cost implications for project actors when implementing the Construction Regulations (2014). Their opinions align with the established notion that the extent of compliance with H&S regulatory requirements is related to perceived cost savings and unrelated to the degree of risk, which the regulation is trying to prevent¹⁰. For instance, the recruitment of competent professionals to oversee H&S is a cost that must be budgeted for by the client regarding the regulations. As far back as 2009, the CIDB already affirm that a major distinguishing feature of the H&S legislative framework in South Africa and particularly the Construction Regulations includes the introduction of a new participant to the construction process, namely the client-appointed H&S agent that is tasked on behalf of the client to coordinate the other members and documents to facilitate better management of H&S on construction projects⁹. Further, the study also found that permit-to-work requirement will have a possible impact on project initiation and planning, a situation that would also have cost implications for the system. Also, the DoL is likely to experience backlogs, which may eventuate through the non-availability of personnel required for processing permits.

Exposition on permit-to-work requirements of the Construction Regulations

In South Africa, the legal framework that provides for enforcement and implementation of the Construction Regulation is the Occupational Health and Safety Act, 85 of 1993/19. The Act states that :

“8(1) every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.”

The first edition of the Construction Regulations was promulgated in South Africa in 2003. The Construction Regulations (2003) 3(1)(a) required a principal contractor to notify the DoL of his / her intention to commence with construction works. Regarding this regulation, the main contractor had to provide the client with a well-documented H&S plan based on clients' specifications.

In terms of the Construction Regulations (2014), the application of a permit-to-work requirement for the client is an essential legislative requirement, while notification of construction works remains. Regarding the two, when one is not applicable, the other shall apply. The Construction Regulations (2014) 3(1) require that a client applies for a construction work permit 30 days before construction work is to be carried out, while section 4(1) requires that a principal contractor notifies the DoL of his/her intention to perform any construction works seven (7) days before the work can be performed. The client, designer and principal contractor's responsibility on H&S has been strengthened by this regulation: the Construction Regulations 2014 5(1) (a-d, f, g, h, j, l) require the client to prepare a site-specific H&S specification based on the baseline risk assessment. The client is also required to provide the designer with an H&S specification, and the designer must take the specification into consideration during the design stage and include H&S specifications in the tender document. Furthermore, the client is required to ensure that potential principal contractors submitting bids make provision for the cost of H&S measures, that he/she is competent, is registered and in good standing with the compensation fund, and then discuss and negotiate with principal contractors H&S.

CONCLUSION

This study explored implementation issues around the permit-to-work requirement of the construction regulations in South Africa. The study examined the extent of knowledge of the regulations;

the anticipated issues that could derail proper implementation of the permit-to-work requirement; and education and training demands of the requirement. Based on the findings of the study, it can be argued that the newly introduced clauses in Construction Regulations (2014) have far-reaching implications for the implementation of construction projects in South Africa.

In response to the central research question of the reported study, the realisation of the aim of the study shows that clients may likely experience delays before they can obtain a permit, while waiting for the processing and outcome of a permit application submitted to the DoL. Clients may also encounter delay if competent H&S professionals are not available to be appointed. Increased costs and time are likely to affect infrastructure planning and delivery in the case of the DPW and other related public sector client agencies. Also, clients need to employ H&S practitioners internally to take responsibility and initiate coordination of project teams in ensuring implementation of the Construction Regulations (2014). Industry stakeholders are aware of the permit-to-work requirement, though they may not have been quite aware of how the permit will be processed/implemented. The study established that the regulations had strengthened clients H&S roles and responsibilities, therefore clients would have to hire a CHSA directly, and internal procedures should accommodate a CHSA. Public sector clients appear not to be ready to fulfill the requirements of section 3 of the Construction Regulations (2014). This is a discovery regarding the implementation of section 3 of the new regulations. And participants in this study expressed concern about the implementation of the permit-to-work requirement because of the need for specific H&S competencies that are not readily / widely available in the construction industry of today.

RECOMMENDATIONS

The study suggests that project actors in South African construction should work together to achieve compliance with the legislation. This approach could start with the client and associated regulatory agencies. For instance, the DoL should strive for best practice in the enforcement of the regulations by considering: the recruitment of labour inspectors with university degrees, and registration of labour inspectors with relevant statutory councils. At the centre of implementation of the new regulation is the registration of H&S practitioners, who are expected to have acquired specific levels of competency. It is also suggested that universities should develop construction H&S curricula that are aligned with the intentions of the regulations, especially about the need to cope with the demands of the permit-to-work requirements. The DoL may also consider an online permit system for ease of processing of permit applications and for achieving a reasonable turnaround time for permit approvals. This suggestion could support the implementation of the framework shown in Figure 1.

Although this study utilised an exploratory mixed method research design, the findings far are not exhaustive. Further research should assist in reducing some of its limitations. In particular, future studies should target the 'how' that would benefit the implementation of the permit-to-work requirement of the regulations. More so, there is a need for a study that will monitor the actual implementation of the new version of Construction Regulations so that clear evidence of its impact regarding compliance and change in the industry could be produced. Another area of future research pertains to the 'why' of the limited internal construction H&S professionals in government departments who procure construction services regularly. While service providers can be used for multiple jobs, it is important for a client body to be intelligent regarding its requirement and compliance with regulations.

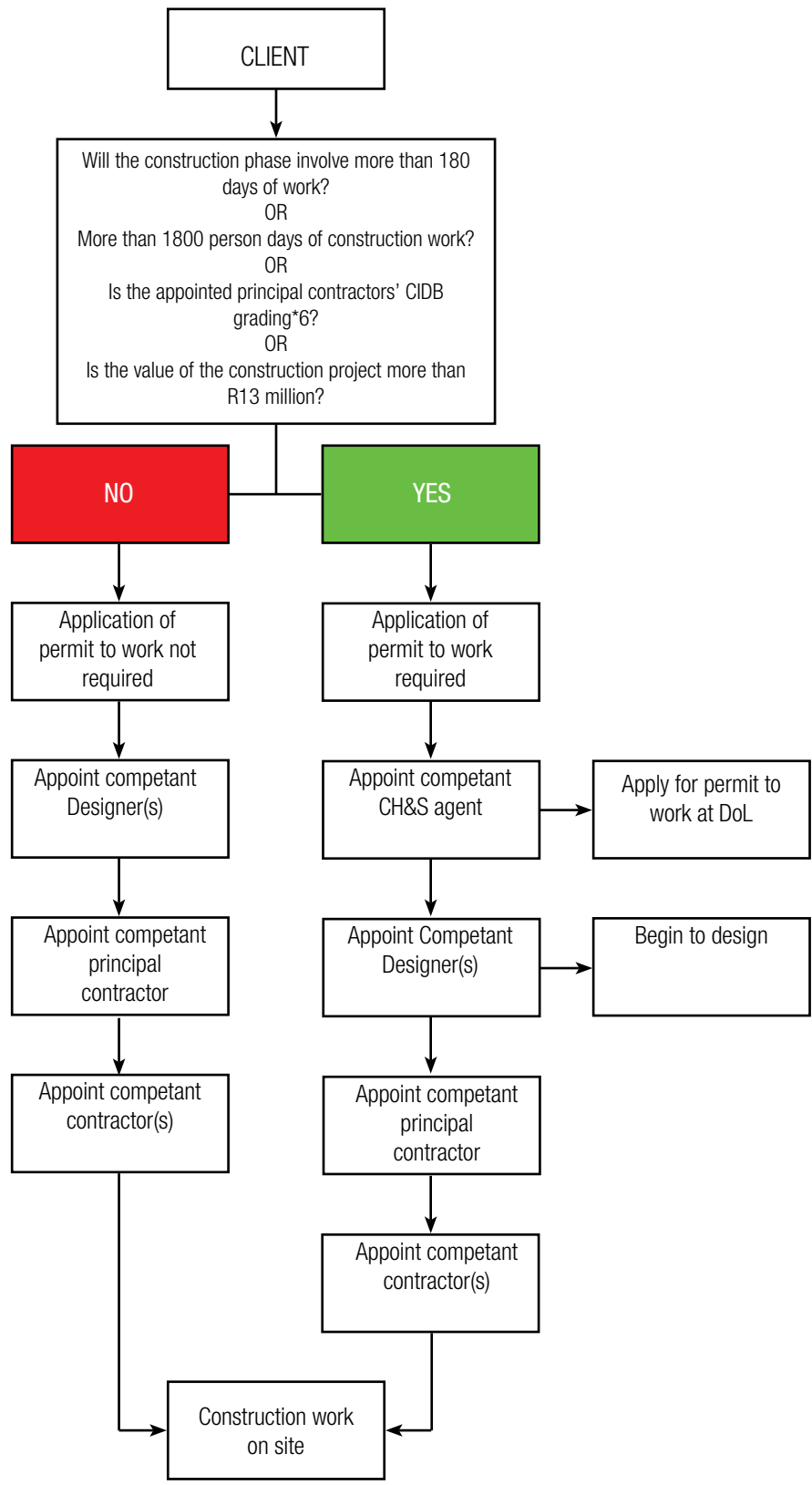


Figure 1: Framework of application and permit-to-work system

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