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Introduction

- Procurement plays a major role in H&S
- Award of contracts on the basis of competitive tendering is problematic
- South African standard conditions of contract generally make vague reference to H&S
- Wells and Hawkins (2009) advocate that H&S should be separately priced - prime cost items, provisional sums, or the use of another form of pricing mechanism
- Periodic study undertaken to determine:
  - Perceived importance of H&S
  - Extent to which H&S has been / is addressed by contract documentation
  - Perceptions relative to the financial provision for H&S
  - Potential of interventions to contribute to an improvement in H&S

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Conditions of Contract

- Predominating standard forms of contract used in South Africa make explicit or implicit reference to the fact that the forms of contract are subject to legislation impacting on construction H&S [cidb (2009]:
  - General Conditions of Contract (GCC) does not make any explicit reference to H&S other than the requirement for 'reporting of accidents' (civil engineering construction)
  - Joint Building Contracts Committee (JBCC) does not make any explicit reference to H&S, but does make explicit reference to the parties complying with all laws, regulations and bylaws regarding the execution of the works (building construction)
  - International Federation of Consulting Engineers (FIDIC) and the New Engineering Contract (NEC) (of overseas origin) make specific reference to H&S - some cases the terminology or referencing does not fully align with the requirements of the South African H&S legislative framework

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Construction Regulations (1)

- "Surveyor specifying articles or drawing up specifications" included under definition of *designer*
- Relative to Structures 9 (2) designers are required to:
  - Provide clients with all relevant information that may affect the pricing of the work
  - Inform Principal Contractors (PCs) of any dangers or hazards and provide information for the safe construction of the design
  - Include a geo-science technical report, the design loading of the structure, and the methods and sequence of construction in a report made available to the PC
  - Modify the design or make use of substitute materials where the design necessitates the use of dangerous structural or other procedures, or materials hazardous to H&S

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Construction Regulations (2)

- Clients required to:
  - Prepare and provide Principal Contractor with H&S specifications
  - Provide PC with any information that may affect H&S
  - Provide sufficient H&S information when changes made to design and construction
  - Ensure that PCs have made provision for the cost of H&S in their tenders

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Provision for H&S: Appropriate percentage? (1)

- Research conducted in Hong Kong - contractors set aside < 0.5% and some < 0.25% of project value (Tang *et al.*, 1997)
- The maximum payment for all H&S items in terms of the Hong Kong 'Pay for Safety' scheme was set at approximately 2% of the estimated value of the contract on small projects, and 1% on large projects (Wells and Hawkins, 2009)
- Research conducted in South Africa - 0.22% of project cost (Smallwood, 1992)
- Subsequent 'cost of H&S' study (Smallwood, 2004):
  - 'Better practice' H&S GCs – 8 responded to the 'cost of H&S' question
  - Percentage 'PC' cost of H&S constitutes of total project cost:
    - 3% (1 No.)
    - 0.5% (1 No.)
    - 0 ≤ 1% (3 No.)
    - > 1 ≤ 2% (3 No.)

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Provision for H&S: Appropriate percentage? (2)

- Mean percentage H&S constitutes of tender and project cost to be 1.6% and 1% respectively (Smallwood, 2011)

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Research – Sample stratum

- 60 Medium and large sized general contractor (GC) members of the East Cape Master Builders Association (ECMBA)
- Response - 11 Responses were received which equates to a response rate of 18.3%

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Research – Findings (1)

Document / Reference	Response (%)						MS	Rank
	U	Minor……Major						
		1	2	3	4	5		
General Conditions of Contract (CoC)	9.1	36.4	36.4	18.2	0.0	0.0	1.80	1
FIDIC (CoC)	72.7	18.2	0.0	9.1	0.0	0.0	1.67	2
Model preambles	0.0	63.6	27.3	9.1	0.0	0.0	1.45	3
JBCC (CoC)	0.0	90.9	0.0	9.1	0.0	0.0	1.18	4
Standard System of Measuring Builders Work	9.1	90.9	0.0	0.0	0.0	0.0	1.00	5
NEC (CoC)	81.8	18.2	0.0	0.0	0.0	0.0	1.00	6

Table 1: Extent to which documents / references address / mention H&S.

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Research – Findings (2)

Form of provision	Response (%)							
	Unsure	0%	>0% ≤ 20%	>20% ≤ 40%	>40% ≤ 60%	>60% ≤ 80%	>80% < 100%	100%
Provisional sum	0.0	63.6	27.3	0.0	0.0	0.0	9.1	0.0
Preliminaries 'item'	0.0	0.0	0.0	0.0	9.1	18.2	36.4	36.4
Detailed H&S preliminaries	9.1	18.2	18.2	0.0	27.3	27.3	0.0	0.0
H&S 'trade' / section	0.0	45.6	27.3	0.0	9.1	9.1	0.0	9.1

Table 2: Basis on which contract documents have facilitated financial provision for H&S subsequent to the promulgation of the Construction Regulations (18 July 2003)

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Research – Findings (4)

Statement	Response (%)						MS	Rank
	Unsure	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Contract document enabled financial provision for H&S promotes H&S	0.0	0.0	0.0	9.1	45.5	45.5	4.36	1
A detailed H&S section should be included in the Preliminaries	0.0	0.0	0.0	9.1	54.5	36.4	4.27	2
Appropriate contract documentation promotes H&S	0.0	0.0	0.0	18.2	54.5	27.3	4.09	3
Competitive tendering without reference to H&S marginalises H&S	0.0	0.0	9.1	27.3	9.1	54.5	4.09	4
Competitive tendering marginalises H&S	0.0	0.0	9.1	27.3	18.2	45.5	4.00	5
A provisional sum should be provided for H&S in the preliminaries	0.0	18.2	9.1	9.1	18.2	45.5	3.64	7
Standard contract documentation generally makes cursive reference to H&S	0.0	0.0	18.2	18.2	54.5	9.1	3.55	8
H&S specifications are project specific	0.0	9.1	9.1	18.2	36.4	27.3	3.64	6
H&S specifications are included with tender documentation	0.0	9.1	0.0	18.2	72.7	0.0	3.55	9
Contract documentation promotes H&S	0.0	9.1	9.1	27.3	45.5	9.1	3.36	10
H&S specifications highlight hazards	0.0	9.1	36.4	27.3	27.3	0.0	2.73	11
Contractors are afforded the opportunity to price H&S on an equitable basis	0.0	36.4	18.2	18.2	27.3	0.0	2.36	12
Contractors are afforded the opportunity to price items included in H&S specifications on an equitable basis	0.0	27.3	27.3	27.3	18.2	0.0	2.36	13
H&S specifications include designer 'design and construction' method statements	9.1	9.1	45.5	36.4	0.0	0.0	2.30	14

Table 3: Degree of concurrence with statements on a range of strongly disagree to strongly agree.

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Research – Findings (5)

Cost type	Yes (%)	Mean (%)
Tender cost estimate	30.0	2.5
Project cost	10.0	NR

Table 4: Percentage H&S constitutes of tender cost and project cost.

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Research – Findings (6)

Parameter	Response (%)						MS	Rank
	U	Not …….. Very						
		1	2	3	4	5		
Project quality	0.0	0.0	0.0	0.0	18.2	81.8	4.82	1
Project cost	0.0	0.0	0.0	0.0	27.3	72.7	4.73	2
Project time	0.0	0.0	0.0	0.0	27.3	72.7	4.73	3
Project H&S	0.0	0.0	0.0	9.1	36.4	54.5	4.45	4
Environment	0.0	0.0	0.0	54.5	27.3	18.2	3.64	5
Construction ergonomics	0.0	0.0	0.0	45.5	45.5	9.1	3.64	6

Table 5: Importance of project parameters to respondents' organisations.

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Conclusions (1)

- Traditional project parameters are still more important to contractors than H&S
- The 'authors' of standard conditions of contract are not committed to H&S, do not view H&S as a project value, and the project environment is not conducive to optimising H&S (in cases barely make reference to / mention H&S and other cases hardly)
- Ditto:
  - Model preambles
  - Standard System of Measuring Builders Work
- Contractors do not know (and compute) the cost of H&S during the tendering and construction phases

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Conclusions (2)

- The authors of H&S specifications do not understand the intent and rationale therefore – not all are project specific, do not record residual hazards, and not linked to the facilitating of financial provision for H&S

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Recommendations

- Employer organisations should raise the status of H&S within their constituencies through the conveyance of the role of optimum H&S in overall project performance
- Lobbying is required ito the extent to which contract documents facilitate / make financial provision for H&S
- Case study research needs to be conducted to determine a reliable mean for the cost of H&S on various categories of projects
- H&S specifications should be project specific, record residual hazards, be included in contract documentation, and be linked to the facilitating of financial provision for H&S

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