NELSON MANDELA UNIVERSITY

SOUTH AFRICAN INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (SAIOSH)

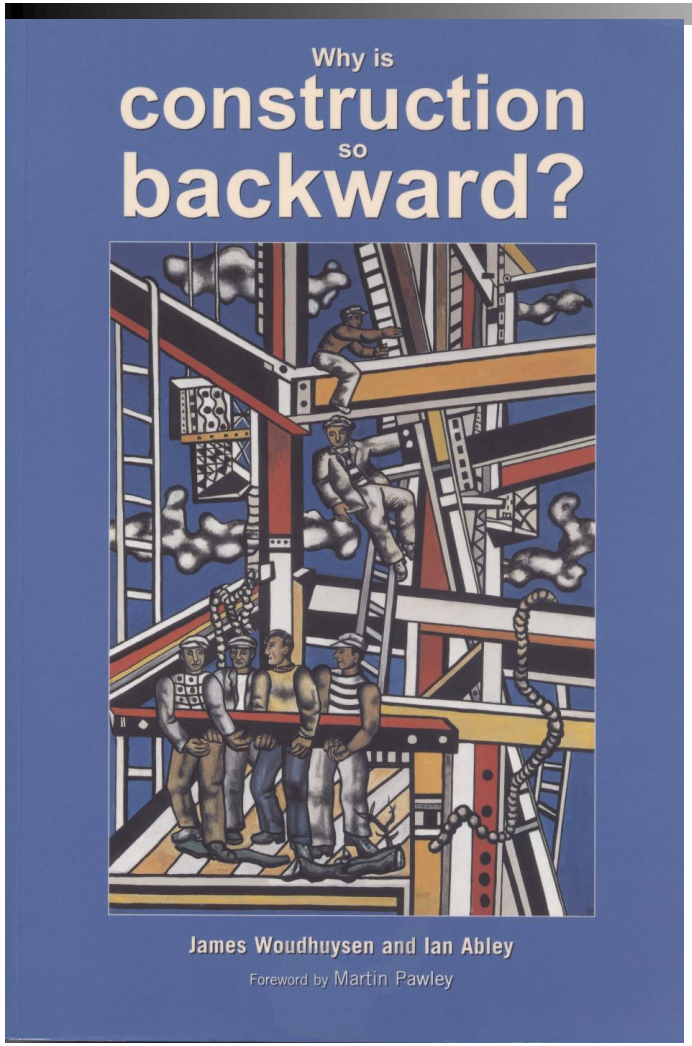
HEALTH AND SAFETY CONFERENCE
CAPE TOWN, 15 AUGUST 2025

THE STATE OF SOUTH AFRICAN CONSTRUCTION HEALTH AND SAFETY

PRESENTED BY PROF JOHN SMALLWOOD
PROFESSOR OF CONSTRUCTION MANAGEMENT
DEPT. OF CONSTRUCTION MANAGEMENT
NELSON MANDELA UNIVERSITY
john.smallwood@mandela.ac.za

NELSON MANDELA UNIVERSITY

Why is construction so backward?



"So long as construction remains a backward industry, safety within it will be backward. So long as off-site manufacturing remains a footnote to general building, a lot of accidents are bound to happen in the hurly-burly rush to get on-site work completed on time ." (p. 43)

(Woudhysen and Abley, 2004)

NELSON MANDELA UNIVERSITY

Introduction (1)

This presentation is mostly based upon the:

- **Article 'The Long Overdue Overhaul of South African Construction Health and Safety (H&S)':**
  - **https://sacpcmp.org.za/shape-shifter-july-2024/**
  - **https://tobuild.co.za/news/the-long-overdue-overhaul-of-south-african-construction-health-and-safety-hs/**
  - **https://www.svmag.co.za/issuepage/327/SV_PROTECT_MAGAZINE_VOL18_NO2_SECOND_QUARTER_2024**
  - **https://safety1st.co.za/wp-content/uploads/2024/06/African-OSH-June-2024.pdf**
  - **https://forum.safebuild.co.za/index.php?threads/the-long-overdue-overhaul-of-south-african-construction-health-and-safety-h-s.1629/**
  - ***i-DEAL.* Issue 06 2024. 19-20 (Summary in the DEL's internal newsletter)**
- **Study 'The State of South African Construction Health and Safety'**

Introduction (2)

- The following articles, among others, reflect the experience of collapses in South African construction:
  - Constructing reinforced concrete frames without injury and fatality: The relationship between health and safety and quality, *The Civil Engineering and Building Contractor*, March 1997
  - Large-scale construction accidents Is there a trend? *ProjectPro*, September 1998
  - Slab and structural collapses can be prevented, *SA Builder / Bouer*, March 2002
  - Construction slab collapses: Could we prevent the next one? *Safety Management*, March 2002
  - Slab, deck, roof and ceiling collapses: Can they be prevented? *Building Africa*, May 2003
  - Twelve ingredients for optimum construction H&S…incident prevention, *Safety Management*, August 2004

Introduction (3)

- Accidents will continue to occur in construction until ….. , *Specifier*, August 2004

- Preventing 'Accidents' in Construction, http://www.cbe.org.za/PDF/Health_and_Safety_Preventing_Accidents_Article.pdf (requested by the Council for the Built Environment post-Tongaat Mall collapse, 19 November 2013)
- SA Builder. 2016. NMMU releases report on Prevention of the Collapse of Reinforced Concrete (RC) Structures. Johannesburg: *SA Builder* [online] Available at: https://www.sabuilder.co.za/2016/02/21/nmmu-releases-report-on-prevention-of-the-collapse-of-reinforced-concrete-rc-structures/ [Accessed 17 May 2024].

NELSON MANDELA UNIVERSITY

Introduction (4)

I also presented five workshops for the South African Institute of Occupational Safety and Health (Saiosh) during July / August 2016, and authored an article 'Preventing 'Accidents' in Construction' for the Council for the Built Environment (CBE), which was posted on their website post Tongaat Mall collapse for a period of time. This article was among several published in construction magazines and elsewhere.

Other interventions include several conference keynote addresses, and scientific papers. One such paper can be accessed at: https://lnkd.in/dYKYqWiG

Literally hundreds of my solo and co-authored presentations are available at: https://lnkd.in/dQvPUzDF

NMMU releases report on Prevention of the Collaps...

sabuilder.co.za

146 14 comments • 39 reposts

Like Comment Repost Send

14,656 impressions View

09 October 2024 screenshot of personal LinkedIn page post of 09 May 2024. The article 'Preventing the collapse of reinforced concrete (RC) structures, support work and formwork during construction' published (posted) in SA Builder on 21 February 2016: https://lnkd.in/d9D7DRUj (The full report can be downloaded at the end of the post). 14 656 Views to date, which increased to 14 661 while creating this slide. The post was in response to the George building collapse, 06 May 2024, six years and 94 days after the publication of the report on 31 January 2016.

Nelson Mandela Metropolitan University
for tomorrow

Saiosh OHS CPD WORKSHOP

CAPE TOWN, 14 JULY 2016
DURBAN, 21 JULY 2016
JOHANNESBURG, 28 JULY 2016
PORT ELIZABETH, 1 AUGUST 2016
BLOEMFONTEIN, 16 AUGUST 2016

PREVENTING THE COLLAPSE OF REINFORCED CONCRETE (RC) STRUCTURES, SUPPORT WORK AND FORMWORK DURING CONSTRUCTION

PRESENTED BY PROF JOHN SMALLWOOD
PROFESSOR OF CONSTRUCTION MANAGEMENT
DEPT. OF CONSTRUCTION MANAGEMENT
john.smallwood@nmmu.ac.za

Saiosh

NELSON MANDELA UNIVERSITY

H&S performance (1)

- Based upon a total of 298 069 workers insured by The Federated Employers Mutual Assurance Company (RF) (Pty) Ltd (FEM) (2025) for the year 2024, the:
  - Fatality rate (FR) was 20.1 / 100 000 workers
  - Accident rate (AR) was 2.19 / 100 workers
  - Disabling injury incidence rate (DIIR) was 0.29 or 0.29 / 100 workers
- The FR does not compare favourably with the FRs of the Australian and United Kingdom (UK) construction industries:
  - Australia: 2.1 for 2021 (Safe Work Australia, 2023)
  - UK: 2.1 in 2022 / 2023 (Health & Safety Executive, 2024)

NELSON MANDELA UNIVERSITY

H&S performance (2)

- During 2021, the presenter conducted ‘The state of the South African construction industry’ survey among a comprehensive range of stakeholders due to an invitation to deliver a keynote address to the inaugural annual Construction Industry Development Board (cidb) ‘The state of the South African construction industry seminar’
- Commencing April 2024, the author replicated the study, which, among others, required respondents to rate the South African construction industry relative to 75 factors
- This enabled a comparison of the 2021 and 2024 ratings

NELSON MANDELA UNIVERSITY

H&S performance (3)

Aspect / Parameter	2021		2024		2024 / 2021 (%)
	MS	Rank	MS	Rank	
Health and safety on projects	3.30	3	3.19	10	-4.7
Environmental management on projects	3.04	17	3.11	14	3.3
Empowerment	2.91	23	3.10	15	9.9
Legal compliance	3.10	15	3.09	18	-0.6
Risk management	2.76	40	2.97	27	12.0
Respect for people (within the industry)	2.90	26	2.94	29	2.2
Training (skills)	2.80	34	2.87	41	3.6
Corporate social responsibility	2.87	27	2.79	48	-4.4
Skills development	2.54	57	2.71	56	11.0
Primary health promotion	2.68	46	2.63	59	-3.2
Welfare facilities on projects	2.53	59	2.35	69	-11.7
Employee assistance programmes (substance abuse)	2.22	71	2.33	70	9.3
Mental health	2.38	65	2.26	72	-8.9
Work-life balance	2.19	72	2.22	73	2.2
Mean (of 75)	2.76		2.86		5.8

Table 1: Rating (Very poor to Very good) of the South African construction industry relative to 14 (H&S-related) / 75 aspects / parameters (Smallwood, 2021; 2024) (MS: 1.00 – 5.00).

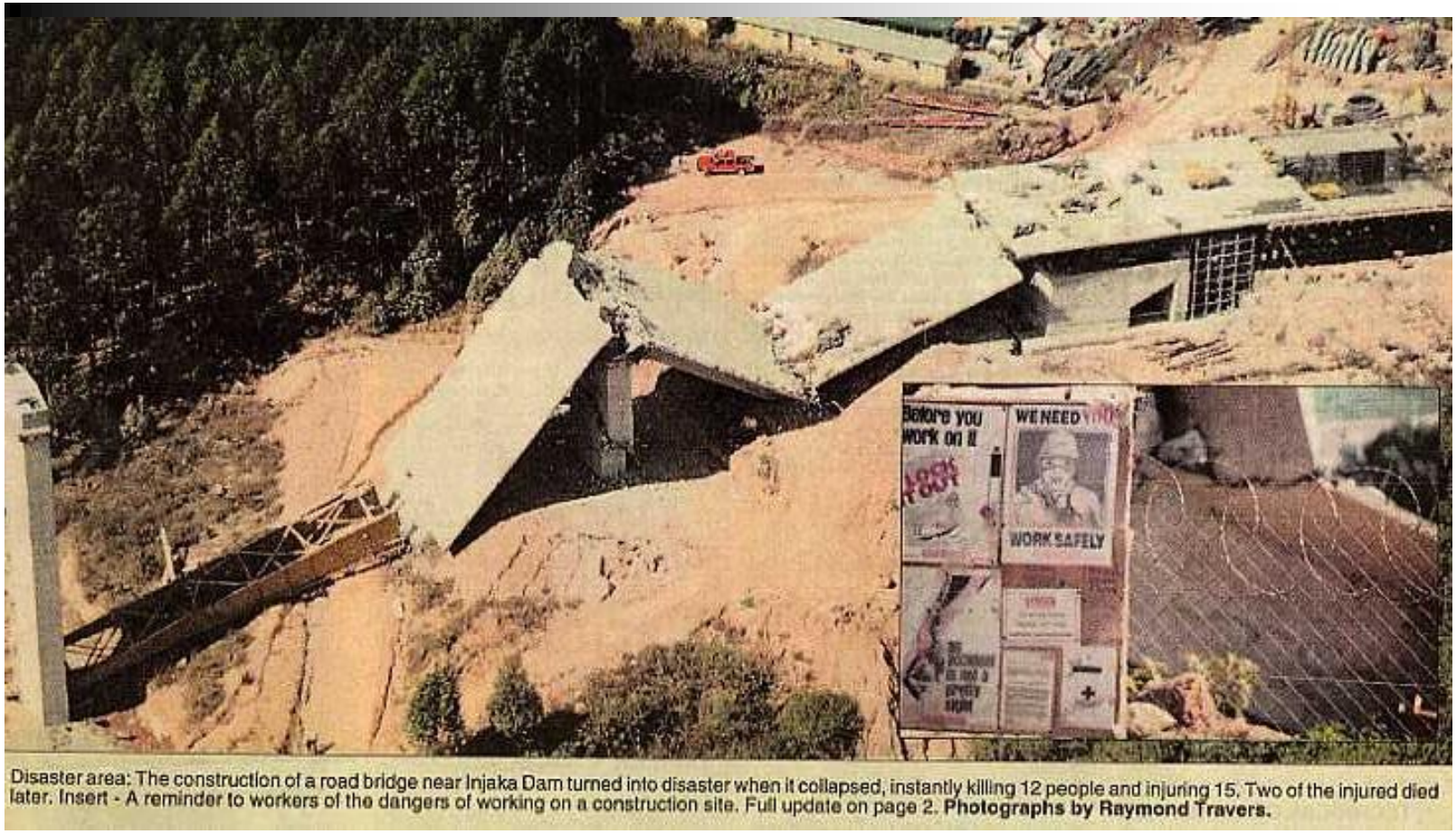
NELSON MANDELA UNIVERSITY

Pretoria North Shopping Centre slab collapse (17 October 1996)

(Davis, 1996)

NELSON MANDELA UNIVERSITY

Injaka Bridge collapse, Mpumalanga (6 July 1998)



Disaster area: The construction of a road bridge near Injaka Dam turned into disaster when it collapsed, instantly killing 12 people and injuring 15. Two of the injured died later. Insert - A reminder to workers of the dangers of working on a construction site. Full update on page 2. **Photographs by Raymond Travers.**

(Travers, 1998)

NELSON MANDELA UNIVERSITY

Delphi Arch slab collapse, Tableview (June 2001) (1)

(Bakkes, 2001)

NELSON MANDELA UNIVERSITY

Delphi Arch slab collapse, Tableview (June 2001) (2)

The project manager, consulting engineer David Hurter said: "It's a nightmare at the moment. We believe it was the scaffolding which collapsed and the floor went with it."
Mr Hurter said three engineers were trying to find out the reason for the collapse. "We used the same procedures for phase one and two of the development and everything was fine. Fortunately, it is only an external balcony which collapsed and it will not delay completion of the project. We will have it cleared up in a few days and everything will be back on track." (Brenner, 2001)

NELSON MANDELA UNIVERSITY

Coega Bridge collapse, Port Elizabeth (13 November 2003) (1)

(Markman, 2003)

NELSON MANDELA UNIVERSITY

Coega Bridge collapse, Port Elizabeth (13 November 2003) (2)

(Markman, 2003)

NELSON MANDELA UNIVERSITY

Cleveland Bridge collapse (M2) (July 2004) (1)

(Tertius, 2004)

NELSON MANDELA UNIVERSITY

Cleveland Bridge collapse (M2) (July 2004) (2)

(Tertius, 2004)

NELSON MANDELA UNIVERSITY

uMhlanga Ridge collapse (1)

(Anonymous)

NELSON MANDELA UNIVERSITY

uMhlanga Ridge collapse (2)

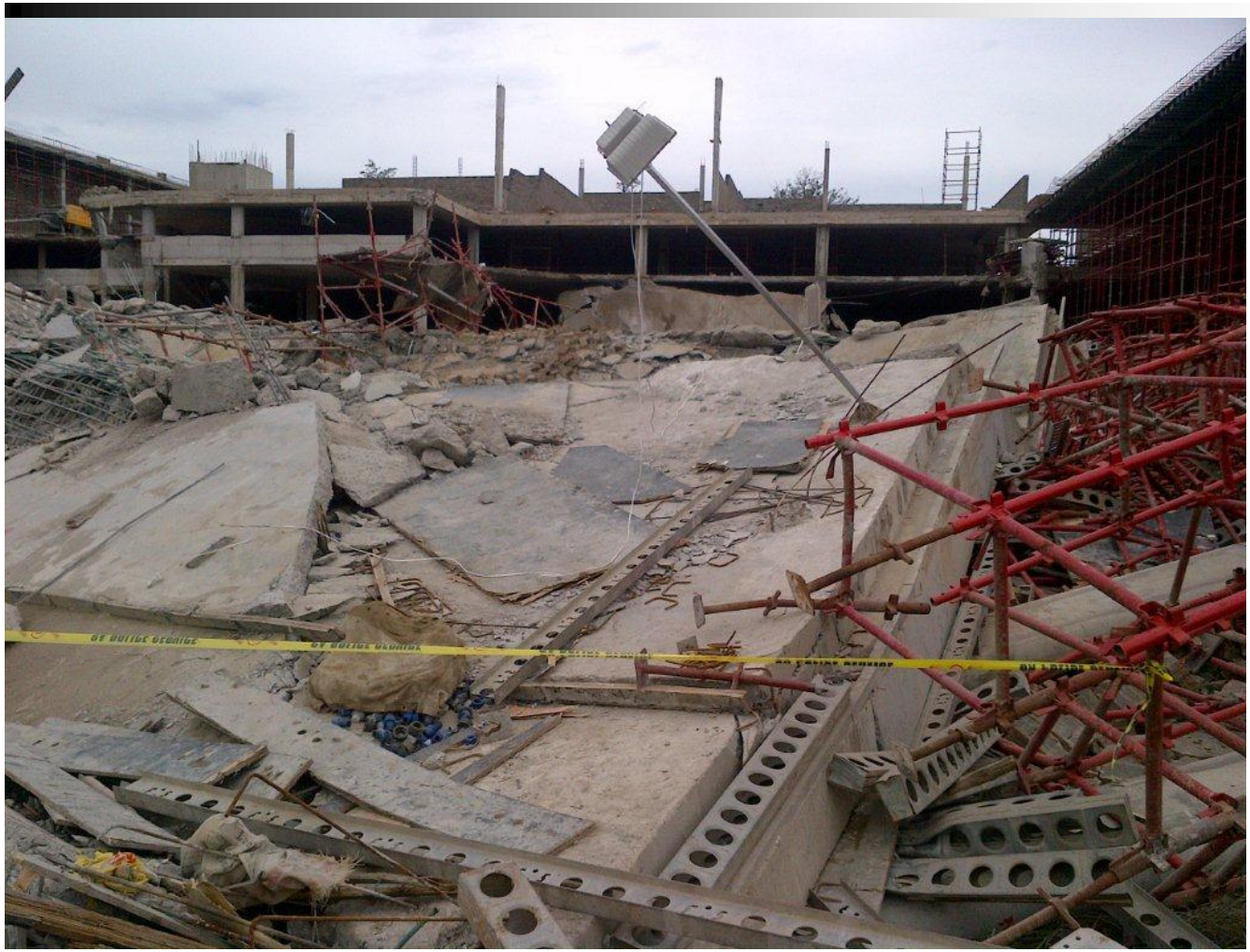
(Anonymous)

NELSON MANDELA UNIVERSITY

Tongaat Mall Collapse (19 November 2013) (1)

NELSON MANDELA UNIVERSITY

Tongaat Mall Collapse (19 November 2013) (2)



NELSON MANDELA UNIVERSITY

Beacon Bay Hotel collapse (July 2015)

(DispatchLIVE, 2015)

NELSON MANDELA UNIVERSITY

M1 Highway Temporary Bridge collapse, Johannesburg (14 October 2015)

(Reuters)

NELSON MANDELA UNIVERSITY

Worcester Reservoir Collapse (14 October 2019) (1)

(Anonymous)

NELSON MANDELA UNIVERSITY

Worcester Reservoir Collapse (14 October 2019) (2)

(Anonymous)

NELSON MANDELA UNIVERSITY

George Building Collapse (6 May 2024)

(HeraldLive, 2024)

NELSON MANDELA UNIVERSITY

What workers are required to do (1)

Trench collapse, Umhlathuze Municipal area, 2007 (Umhlathuze Municipality Excavation H&S Seminar Delegate, 2007)

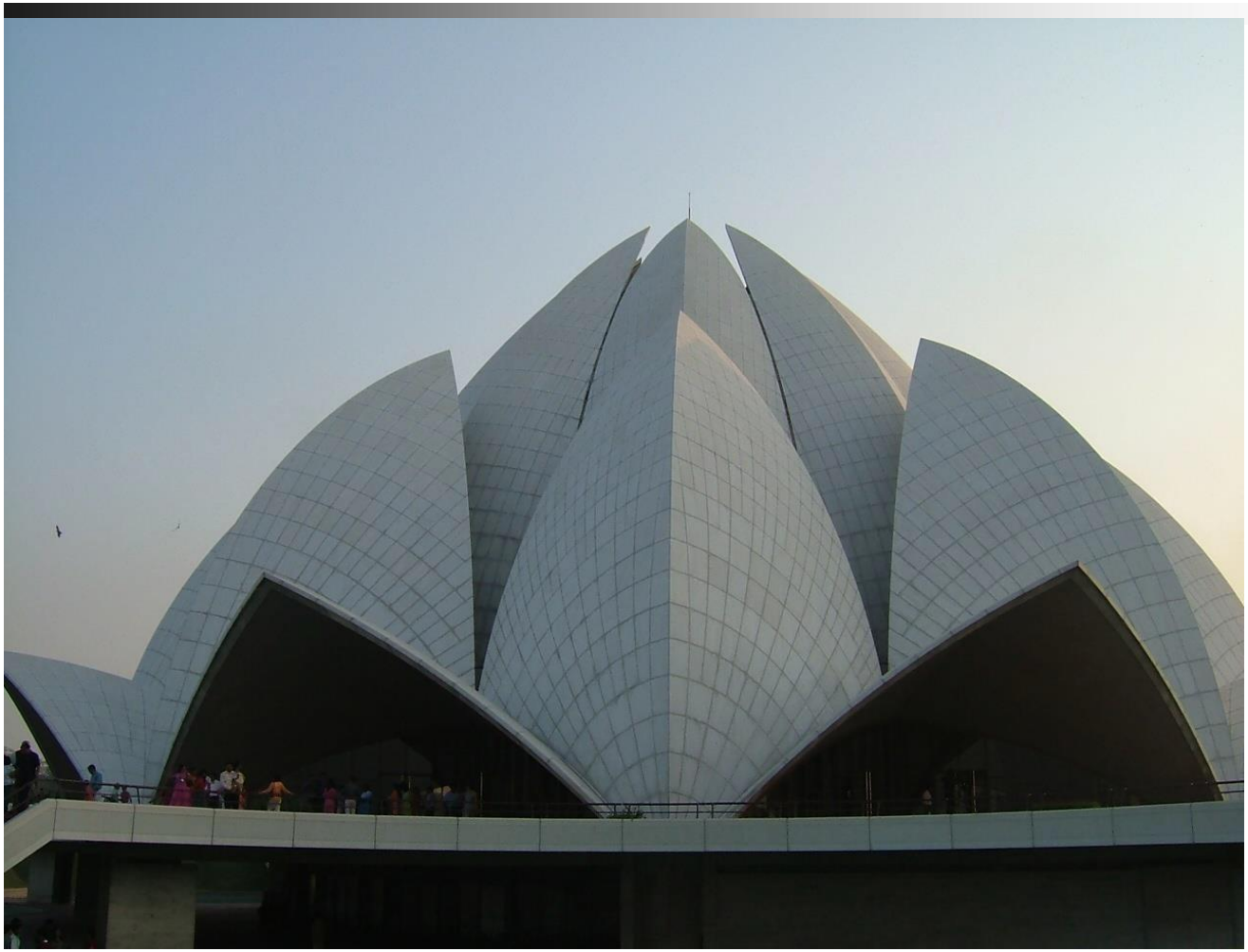
NELSON MANDELA UNIVERSITY

What workers are required to do (2)

Trench collapse, Umhlathuze Municipal area, 2007 (Umhlathuze Municipality Excavation H&S Seminar Delegate, 2007)

NELSON MANDELA UNIVERSITY

What workers are required to do (3)



Bahia Temple, Delhi, India (Smallwood, 2005)

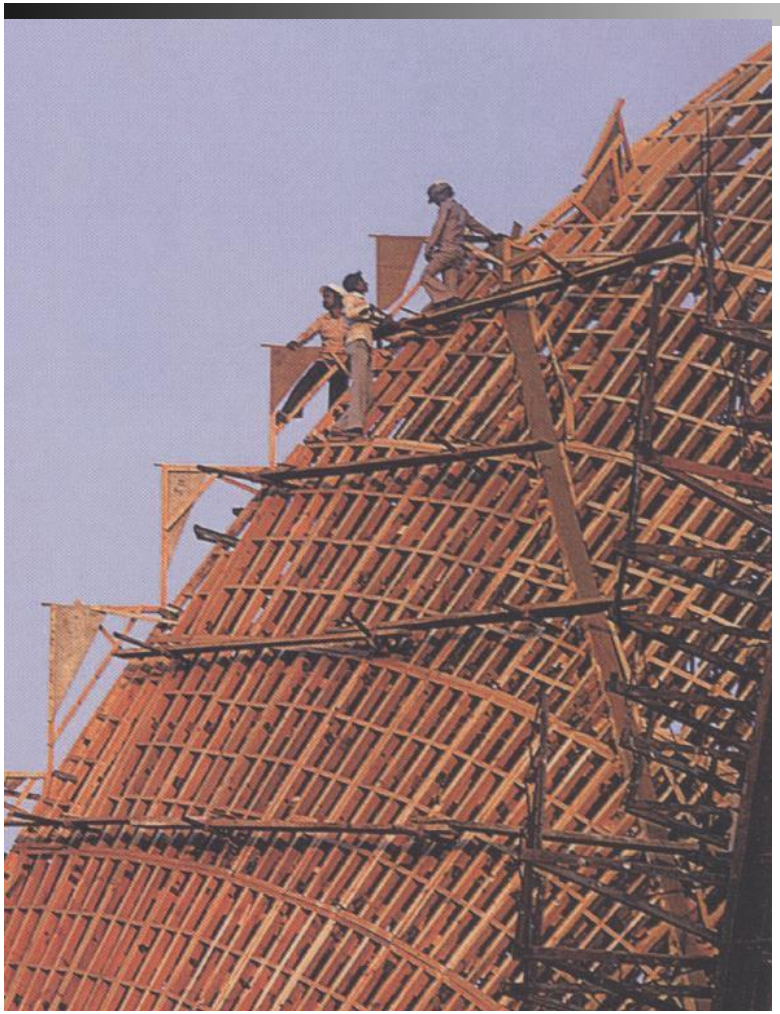
NELSON MANDELA UNIVERSITY

What workers are required to do (4)

Bahia Temple, Delhi, India (The National Spiritual Assembly of the Bahia'is of India, 2002)

NELSON MANDELA UNIVERSITY

What workers are required to do (5)



Bahia Temple, Delhi, India (The National Spiritual Assembly of the Bahia'is of India, 2002)

NELSON MANDELA
UNIVERSITY

What workers are required to do (6)

Bahia Temple, Delhi, India (The National Spiritual Assembly of the Bahia'is of India, 2002)

What workers are required to do (7)

Tying reinforcing – bending, rapid repetitive movements, and ….. (Deacon, 2004)

NELSON MANDELA UNIVERSITY

What workers are required to do (8)

Plank and hollow-block composite slab, Plettenberg Bay (Hamp-Adams, 1994)

NELSON MANDELA UNIVERSITY

What workers are required to do (9)

Paving slabs, Dublin, Ireland (Smallwood, 2005)

NELSON MANDELA UNIVERSITY

How we transport workers (1)

Worker tied down to back of LDV (Mtola in cidb, 2009)

NELSON MANDELA UNIVERSITY

How we transport workers (2)

Cavalier transportation of workers plus equipment (Smallwood, 2017)

NELSON MANDELA UNIVERSITY

Respect (Lack of) for people (1)

'Outdoor dining', Sishen Expansion Project (SEP) (Smallwood, 2007)

NELSON MANDELA UNIVERSITY

Respect (Lack of) for people (2)

Lockers, SEP (Smallwood, 2007)

NELSON MANDELA UNIVERSITY

Respect (Lack of) for people (3)

Contents of portable toilet, Humansdorp (Pierce-Jones, 2006)

NELSON MANDELA UNIVERSITY

Respect (Lack of) for people (4)

Contents of portable toilet, SEP (Smallwood, 2007)

NELSON MANDELA UNIVERSITY

Respect (Lack of) for people (5)

Naturally ventilated portable toilet, Port Elizabeth (Anonymous, 2007)

NELSON MANDELA
UNIVERSITY

What happens to workers? (1)

Suspended platform (scaffold) collapse, Hillbrow, February 2001 (Safodien, 2001)

NELSON MANDELA UNIVERSITY

What happens to workers? (2)

Trench collapse, Klein Brak River, March 2005 (Myer, 2005)

NELSON MANDELA UNIVERSITY

Study: Research method (1)

- **Quantitative method:**
  - **Online questionnaire survey:**
    - **Rating of the South African construction industry relative to 249 construction H&S aspects / parameters**
    - **Rating of South African construction's current H&S status**
    - **The top ten challenges in terms of improving the H&S performance of the South African construction industry**
    - **The top ten interventions required in terms of improving the H&S performance of the South African construction industry**
    - **Comments in general regarding the state, and improving the H&S performance of the South African construction industry (not included)**
    - **9 Demographic questions**
- **Sample strata:**
  - **Association of Construction Health and Safety Management (ACHASM) members and contacts**
  - **Association of Construction Project Managers (ACPM)**
  - **Convenience sample of built environment stakeholders**

NELSON MANDELA UNIVERSITY

Study: Research method (2)

- **Response:**
  - Phase 1 realised 64 responses
  - Phase 2 realised 104, including Phase 1
- **Descriptive statistics:**
  - Frequencies (percentages)
  - Measure of central tendency (MS) between 1.00 and 5.00
  - Limited difference between the mean scores (MSs) of Phase 1 and 2

NELSON MANDELA UNIVERSITY

Study: Research demographics

Occupation	No.	%
Director / MD	11	11.6
Lecturer / Professor / Researcher	10	10.5
SHEQ / RQ Manager / Specialist / Coordinator	10	10.5
SHEQ / CHSO	10	10.5
Project Manager	9	9.5
CHSA	8	8.4
CHSM	8	8.4
Consultant	5	5.3
Business Owner	5	5.3
Civil Engineer / Designer / RE	5	5.3
CEO	4	4.2
Construction Mentor	2	2.1
Contracts Manager	2	2.1
Products Manager	2	2.1
Construction Manager	1	1.1
Operations Manager	1	1.1
Quantity Surveyor	1	1.1
Facilities Specialist	1	1.1
Total	95	100.0

Table 2: Respondents' occupations (95 / 104 responded).

NELSON MANDELA UNIVERSITY

Study: Research findings summary

- Rating of the South African construction industry relative to 249 construction H&S aspects / parameters:
  - 36 / 249 (14.5%) aspects / parameters' MSs are > 3.00 - above average
  - 213 / 249 (85.5%) aspects / parameters' MSs are ≤ 3.00 - below average
  - 0 / 249 (0.0%) aspects / parameters' MSs are > 4.20 ≤ 5.00 - good to very good / very good
  - 5 / 249 (2.0%) aspects / parameters' MSs are > 3.40 ≤ 4.20 - average to good / good
  - 155 / 249 (62.3%) aspects / parameters' MSs are > 2.60 ≤ 3.40 - rated poor to average / average
  - 89 / 249 (35.7%) aspects / parameters' MSs are > 1.80 ≤ 2.60 - very poor to poor / poor

NELSON MANDELA UNIVERSITY

Study: Research findings (1)

Aspect / Parameter	MS		Rank
	P 1	P 2	
South African Institute of Occupational Safety and Health (SAIOSH) (Performance)	3.54	3.63	1
Federated Employers Mutual Assurance (FEM) (Processing and payment)	3.61	3.62	2
Association of Construction Health and Safety Management (Performance)	3.62	3.59	3
Construction H&S Managers (Performance)	3.45	3.46	4
Construction H&S Officers (Performance)	3.46	3.41	5
Federated Employers Mutual Assurance (FEM) (Performance)	3.36	3.37	6
Master Builders Associations (MBAs) (Performance)	3.33	3.33	7
Master Builders South Africa (MBSA) (Performance)	3.34	3.32	8
Tower cranes	3.27	3.30	9
Construction Regulations (Legislation)	3.29	3.22	10

Table 3: Comparison of the Phase 1 & 2 ratings of the South African construction industry relative to the top 10 / 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (2)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
South African Institute of Occupational Safety and Health (SAIOSH) (Performance)	16.5	1.0	13.4	18.6	33.0	17.5	3.63	1
Federated Employers Mutual Assurance (FEM) (Processing and payment)	33.0	2.1	4.1	21.6	28.9	10.3	3.62	2
Association of Construction Health and Safety Management (Performance)	16.3	1.0	12.2	21.4	34.7	14.3	3.59	3
Construction H&S Managers (Performance)	6.1	3.0	10.1	33.3	35.4	12.1	3.46	4
Construction H&S Officers (Performance)	7.1	2.0	17.3	23.5	40.8	9.2	3.41	5
Federated Employers Mutual Assurance (FEM) (Performance)	28.4	1.1	10.5	29.5	22.1	8.4	3.37	6
Master Builders Associations (MBAs) (Performance)	20.0	2.1	12.6	29.5	28.4	7.4	3.33	7
Master Builders South Africa (MBSA) (Performance)	19.8	3.1	10.4	31.3	28.1	7.3	3.32	8
Tower cranes	20.8	3.1	7.3	36.5	27.1	5.2	3.30	9
Construction Regulations (Legislation)	4.0	6.0	19.0	29.0	32.0	10.0	3.22	10
Construction Managers (Top level) (Performance)	6.1	5.1	13.3	38.8	30.6	6.1	3.21	11
Mobile cranes	15.6	2.1	12.5	38.5	29.2	2.1	3.20	12
H&S induction training	4.1	4.1	22.7	26.8	34.0	8.2	3.20	13
Construction H&S Agents (Performance)	8.7	5.8	13.6	35.9	30.1	5.8	3.18	14
Occupational Health & Safety Act (Legislation)	3.9	7.8	18.4	29.1	30.1	10.7	3.18	15
H&S representative training	9.3	2.1	21.6	34.0	24.7	8.2	3.17	16

Table 4A: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (3)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
South African National Roads Agency Limited (Performance)	32.6	6.3	11.6	20.0	23.2	6.3	3.17	17
South African Council for the Project and Construction Management Professions (SACPCMP) (Performance)	13.0	9.0	17.0	27.0	20.0	14.0	3.15	18
First aider training	4.2	4.2	17.7	41.7	27.1	5.2	3.12	19
Toolbox talks (In general)	4.1	5.2	18.6	40.2	23.7	8.2	3.12	20
Construction management commitment (Top level)	7.1	5.1	19.4	34.7	26.5	7.1	3.12	21
Client satisfaction	7.0	4.0	17.0	41.0	28.0	3.0	3.10	22
Equipment manufacturers e.g., scaffolding (Performance)	20.4	4.1	14.3	34.7	22.4	4.1	3.10	23
Compensation for Occupational Injuries & Diseases Act (Legislation)	9.0	7.0	17.0	34.0	26.0	7.0	3.10	24
Construction Managers (Operational level) (Performance)	6.3	5.2	17.7	38.5	29.2	3.1	3.08	25
H&S management systems	10.2	2.0	21.4	38.8	23.5	4.1	3.07	26
Daily H&S Task Instructions	6.1	4.1	22.4	35.7	27.6	4.1	3.05	27
Hoarding / Fencing	8.0	5.0	23.0	34.0	22.0	8.0	3.05	28
Engineering Council of South Africa (ECSA) (Performance)	22.1	4.2	20.0	24.2	27.4	2.1	3.04	29

Table 4B: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (4)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
South African National Standards (SANS) - Sufficient H&S related standards	20.2	7.4	16.0	26.6	25.5	4.3	3.04	30
H&S plan	5.1	7.1	18.2	39.4	25.3	5.1	3.03	31
Administration	5.1	4.0	18.2	47.5	22.2	3.0	3.02	32
Signage	6.2	4.1	19.6	45.4	20.6	4.1	3.01	33
Plant manufacturers (Performance)	20.4	4.1	17.3	36.7	16.3	5.1	3.01	34
Project managing H&S (Construction Project Managers (CPMs))	9.2	6.1	18.4	41.8	17.3	7.1	3.01	35
Project managing H&S (Principal Agents other than CPMs)	10.4	7.3	17.7	38.5	18.8	7.3	3.01	36
Personnel hoists	21.9	4.2	15.6	38.5	15.6	4.2	3.00	37
Fire fighting training	8.3	5.2	19.8	41.7	19.8	5.2	3.00	38
Construction Managers (Middle level) (Performance)	6.2	6.2	18.6	40.2	27.8	1.0	2.99	39
Awareness	3.0	4.0	22.8	45.5	19.8	5.0	2.99	40
Safe work procedures	5.1	5.1	22.2	41.4	21.2	5.1	2.99	41
Construction management commitment (Middle level)	7.3	3.1	25.0	40.6	18.8	5.2	2.98	42
Association of Construction Project Managers (ACPM) (Performance)	36.8	5.3	12.6	25.3	17.9	2.1	2.98	43
Codes of practice	5.1	8.1	19.2	37.4	27.3	3.0	2.98	44

Table 4C: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (5)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
H&S Representatives (Performance)	7.0	8.0	22.0	34.0	22.0	7.0	2.98	45
Site layout	8.2	6.2	20.6	39.2	21.6	4.1	2.97	46
Hazard identification and risk	5.1	8.2	21.4	35.7	24.5	5.1	2.97	47
General civil engineering contractors (Performance)	5.2	3.1	26.0	40.6	21.9	3.1	2.96	48
Construction Project Managers (Performance)	6.0	3.0	26.0	41.0	20.0	4.0	2.96	49
Transporting plant	8.4	3.2	20.0	49.5	15.8	3.2	2.95	50
Suspended platforms	15.8	6.3	16.8	37.9	22.1	1.1	2.94	51
H&S specification	9.1	8.1	22.2	34.3	19.2	7.1	2.94	52
Material hoists	16.7	7.3	15.6	40.6	15.6	4.2	2.93	53
Inspections	7.1	8.1	18.2	45.5	14.1	7.1	2.93	54
Storage of plant	8.2	6.1	21.4	43.9	14.3	6.1	2.92	55
Construction Industry Development Board (cidb) (Performance)	21.9	7.3	19.8	27.1	19.8	4.2	2.92	56
Guidelines	11.5	10.4	18.8	29.2	29.2	1.0	2.91	57
Structural engineering designers (Performance)	9.5	3.2	27.4	38.9	17.9	3.2	2.90	58
Lifting equipment	12.6	5.3	22.1	37.9	20.0	2.1	2.90	59
Chartered Institute of Building (Performance)	46.8	7.4	12.8	17.0	9.6	6.4	2.90	63
H&S schedule relative to the project programme	9.3	4.1	27.8	37.1	17.5	4.1	2.89	64
Rope access	24.0	7.0	21.0	23.0	23.0	2.0	2.89	65
Materials manufacturers (Performance)	20.2	6.1	20.2	39.4	5.1	9.1	2.89	66

Table 4D: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (6)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
Construction vehicles	7.2	5.2	20.6	51.5	13.4	2.1	2.86	67
Fire prevention and protection	7.1	5.1	24.5	43.9	17.3	2.0	2.86	68
Specialist contractors (Performance)	12.6	5.3	23.2	38.9	18.9	1.1	2.86	69
Electrical installations on sites	11.5	4.2	27.1	37.5	16.7	3.1	2.86	70
General contractor provision for H&S	3.0	9.0	22.0	43.0	20.0	3.0	2.86	71
Formwork	6.3	7.3	26.0	36.5	20.8	3.1	2.86	72
Storage of equipment	7.2	6.2	29.9	33.0	18.6	5.2	2.86	73
South African Council for the Architectural Profession (SACAP) (Performance)	33.0	7.4	17.0	22.3	18.1	2.1	2.86	74
Project programming	9.6	9.6	23.4	31.9	21.3	4.3	2.86	75
Reactive media coverage	17.0	10.6	18.1	31.9	17.0	5.3	2.86	76
Professionalism	6.3	6.3	24.2	42.1	18.9	2.1	2.85	77
H&S method statements	5.1	7.1	27.3	36.4	21.2	3.0	2.85	78
Temporary works (Design)	5.2	10.4	22.9	36.5	21.9	3.1	2.84	79
Storage of materials	7.2	7.2	28.9	34.0	16.5	6.2	2.84	80
Remuneration of Construction H&S Manager	16.7	10.4	18.8	32.3	17.7	4.2	2.84	81
Legal compliance	4.1	8.2	28.9	37.1	14.4	7.2	2.83	82
Construction Alliance South Africa (CASA) (Performance)	49.5	5.4	14.0	19.4	7.5	4.3	2.83	83
Compensation Fund (Processing and payment)	28.7	5.9	18.8	30.7	13.9	2.0	2.82	84

Table 4E: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (7)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
General skills (Inclusion of H&S) training	5.2	8.3	20.8	50.0	11.5	4.2	2.81	85
Transporting equipment	7.4	9.5	22.1	38.9	21.1	1.1	2.81	86
Support Work	7.2	9.3	22.7	40.2	17.5	3.1	2.81	87
Fall protection	6.2	9.3	25.8	36.1	18.6	4.1	2.81	88
Investigations	8.2	9.2	27.6	32.7	16.3	6.1	2.81	89
Design Hazard Identification & Risk Assessment	8.2	14.4	17.5	35.1	20.6	4.1	2.81	90
Client baseline risk assessment	9.0	14.0	20.0	31.0	21.0	5.0	2.81	91
Procurement process (Private sector)	15.6	7.3	25.0	32.3	16.7	3.1	2.80	92
Construction management commitment (Operational level - Site)	7.4	7.4	29.5	34.7	16.8	4.2	2.80	93
Risk management	7.0	8.0	31.0	31.0	18.0	5.0	2.80	94
Temporary works (Use)	6.3	11.5	22.9	36.5	18.8	4.2	2.80	95
Civil engineering designers (Performance)	8.5	8.5	22.3	42.6	16.0	2.1	2.79	96
Consulting Engineers South Africa (CESA) (Performance)	33.0	6.4	18.1	28.7	11.7	2.1	2.78	97
Leadership	8.3	8.3	26.0	38.5	14.6	4.2	2.78	98
H&S performance (Industry overall)	6.2	11.3	21.6	40.2	17.5	3.1	2.78	99
Mechanical engineering designers (Performance)	17.9	8.4	25.3	27.4	17.9	3.2	2.78	100
Temporary works (Erection)	6.3	11.6	25.3	34.7	16.8	5.3	2.78	101
Plant (In general)	17.9	5.3	26.3	32.6	17.9	0.0	2.77	102

Table 4F: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (8)

Aspect / Parameter	Response (%)						MS	Rank
	U	VP	P	A	G	VG		
Conditions of contract address H&S in detail	7.1	8.2	24.5	41.8	17.3	1.0	2.77	103
Transporting materials	7.4	10.5	18.9	45.3	16.8	1.1	2.77	104
Communication (In general)	4.0	10.1	23.2	42.4	19.2	1.0	2.77	105
Scaffolding	10.0	7.0	31.0	30.0	20.0	2.0	2.77	106
Environmental management on projects	8.1	12.1	22.2	36.4	17.2	4.0	2.77	107
Attracting human resources (H&S)	7.3	7.3	22.9	47.9	13.5	1.0	2.76	108
General management of H&S (Planning, Organising, Leading, Controlling, & Coordinating)	7.4	8.4	27.4	36.8	17.9	2.1	2.76	109
South African Forum of Civil Engineering Contractors (SAFCEC) (Performance)	34.7	8.4	13.7	28.4	14.7	0.0	2.76	110
Sites' H&S culture	6.3	10.4	25.0	38.5	16.7	3.1	2.76	111
Building Control Officers (BCOs) (Performance)	23.7	7.5	20.4	34.4	11.8	2.2	2.75	112
Electrical engineering designers (Performance)	13.4	8.2	25.8	34.0	16.5	2.1	2.75	113
Specialist contractors' designs (e.g., air-conditioning) (Performance)	16.7	6.3	28.1	33.3	11.5	4.2	2.75	114
Stakeholder management	9.4	8.3	29.2	33.3	16.7	3.1	2.75	115
National African Federation for the Building Industry (NAFBI) (Performance)	58.1	4.3	10.8	19.4	6.5	1.1	2.74	116
Compliance	5.9	7.8	30.4	37.3	15.7	2.9	2.74	117

Table 4G: Rating of the South African construction industry relative to 249 construction H&S aspects / parameters (Smallwood & Raliile, 2025) (MS: 1.00 – 5.00).

NELSON MANDELA UNIVERSITY

Study: Research findings (9)

56.4%		30.9%		5.5%		5.5%		1.8%
Basic	→	Reactive	→	Compliant	→	Proactive	→	Resilient
Little interest in H&S – doing the minimum to get by. Exposed to significant H&S issues.		Aware that H&S is an issue. but usually responding to issues. Systems are forming. but immature.		H&S is a core part of doing business. Focus is on compliance with systems and processes.		Starting to get ahead of the game – anticipating and preventing H&S issues.		World class H&S performance – creating a process of continuous improvement / innovation.

Figure 1: Current H&S status of South African construction based upon Anglo American plc's H&S journey model cited in Foster & Hoult (2013) (Phase 1 only) (Smallwood & Raliile, 2025).

The resultant MS of 1.65 between 1.00 and 5.00, which is ≥ 1.00 < 1.80, indicates the status is between 'Basic' and 'Reactive', and that South African construction is H&S non-compliant

NELSON MANDELA UNIVERSITY

Study: Research findings (9)

Theme	Patterns identified
Leadership and Management Commitment	• Perception of H&S as a cost, not an investment • Lack of accountability and visible leadership • Ego
Compliance and Regulatory Enforcement	• Weak regulatory monitoring and enforcement • Insufficient penalties (e.g., ineffective low fines)
Education, Training, and Competency	• Absence of robust training programs • Lack of continuous professional development
H&S Culture and Worker Behaviour	• Prioritising productivity over H&S • Acceptance of unsafe practices due to socio-economic pressures
Financial and Resource Allocation	• Insufficient funding for H&S measures • Financial strain in smaller firms
Risk Management and Planning	• Superficial or administrative approach to risk assessments • Inadequate proactive safety planning
Communication, Language, and Cultural Barriers	• Miscommunication due to diverse linguistic groups • Cultural differences impacting compliance
Industry Fragmentation and Subcontractor Management	• Reliance on subcontractors causing inconsistent H&S standards • Lack of oversight
Data, Reporting, and Monitoring Issues	• Poor incident reporting and monitoring • Underreporting leading to inaccurate H&S assessments
Socio-economic Factors	• High unemployment and poverty driving unsafe work acceptance • Fear of job loss reducing incident reporting

Table 5: Challenges to Improving H&S in the South African Construction Industry (Phase 1 only) (Smallwood & Raliile, 2025).

NELSON MANDELA UNIVERSITY

Study: Research findings (10)

Theme	Patterns identified
Leadership and Management Commitment	• Strong visible H&S leadership • Management accountability and involvement
Compliance and Regulatory Enforcement	• Stricter monitoring and enforcement • Effective penalties and legal actions
Training, Education, and Competency	• Accessible and affordable training programmes • Continuous professional development
H&S Culture and Behaviour	• Promoting H&S-first culture • Encouraging positive behavioural change
Financial and Resource Allocation	• Adequate budgeting for H&S measures • Financial support for SMEs
Risk Management and Planning	• Thorough risk assessments • Proactive planning
Communication, Language, and Inclusivity	• Multilingual training materials • Inclusive communication strategies
Industry and Subcontractor Management	• Formalisation of subcontractor practices • Consistent application of H&S standards
Data, Reporting, and Technology Adoption	• Accurate incident reporting and data analysis systems • Adoption of modern H&S technologies
Socio-economic and Labour Practices	• Addressing socio-economic pressures • Ensuring fair, healthy and safe labour practices

Table 6: Interventions to Improve H&S in the South African Construction Industry (Phase 1 only) (Smallwood & Raliile, 2025).

NELSON MANDELA UNIVERSITY

Better practice (1)

Nelson Mandela Metropolitan University
for tomorrow

WBHO BUILDING AND CIVIL 2016 ANNUAL CONFERENCE

ZEBULA GOLF ESTATE AND SPA, 11-13 AUGUST 2016

IMPROVING HEALTH AND SAFETY (H&S) PERFORMANCE IN WBHO

PRESENTED BY PROF JOHN SMALLWOOD
PROFESSOR OF CONSTRUCTION MANAGEMENT
DEPT. OF CONSTRUCTION MANAGEMENT
john.smallwood@nmmu.ac.za

WBHO

NELSON MANDELA UNIVERSITY

Better practice (2)

OUTLINE REPORT EMANATING FROM A STUDY
'IMPROVING HEALTH AND SAFETY PERFORMANCE WITHIN WBHO'

WRITER / COPYRIGHT : PROFESSOR JJ SMALLWOOD
DEPARTMENT OF CONSTRUCTION MANAGEMENT,
NELSON MANDELA UNIVERSITY
john.smallwood@mandela.ac.za

DATE : 2 NOVEMBER 2017

NELSON MANDELA UNIVERSITY

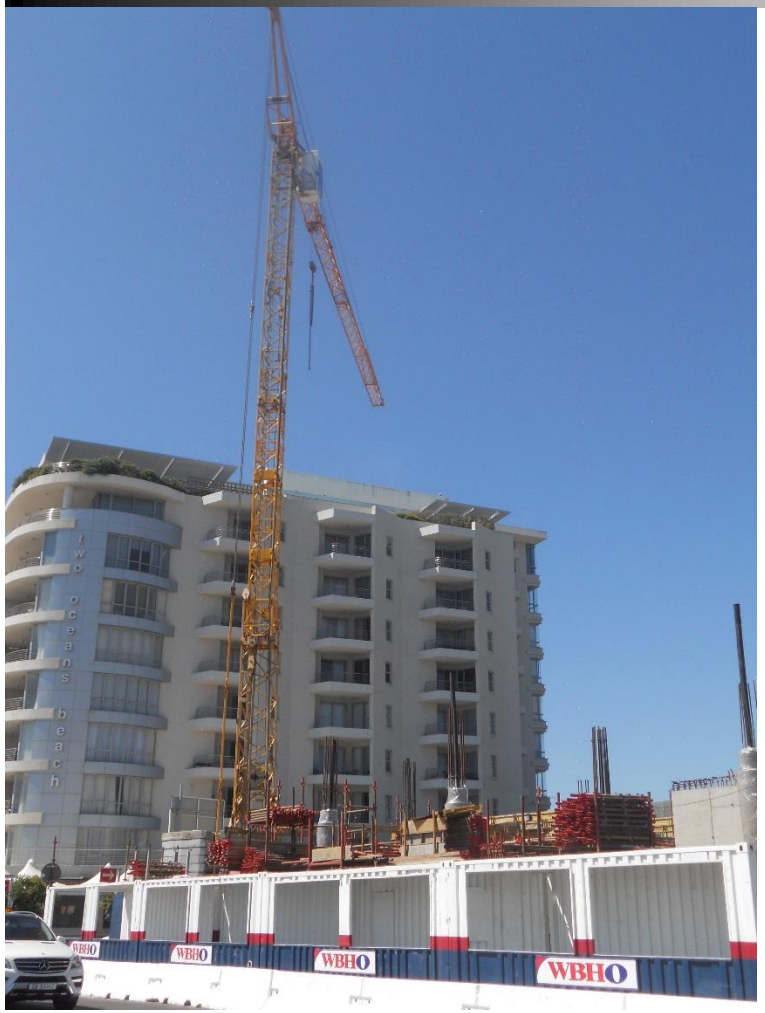
Better practice (3)

Outline Report Emanating From a Study 'Improving Health and Safety Performance Within WBHO':

- 134 Responses were included in the phase 1 analysis of the data, and the findings were reported on in a presentation at the two WBHO Annual Conferences staged at the Zebula Golf Estate & Spa on 13 August (Building & Civil) and 26 August (Roads & Earthworks)
- During phase 2, 318 responses were included in the analysis of the data, and the findings are presented in the report

NELSON MANDELA UNIVERSITY

Better practice (4)



Apartments, Beach Road, Mouille Point, Cape Town (Smallwood, March 2015)

NELSON MANDELA UNIVERSITY

Better practice (5)

Greenacres Shopping Centre, Port Elizabeth (Smallwood, May 2016)

NELSON MANDELA UNIVERSITY

Better practice (6)

Workers change room, shower, and lockers, Max 4 project, Lund, Sweden (Smallwood, August 2012)

NELSON MANDELA
UNIVERSITY

Better practice (7)

Workers' mess area, Max 4 project, Lund, Sweden (Smallwood, August 2012)

NELSON MANDELA UNIVERSITY

Better practice (8)

OJ Construction bus, Namibia (OJ Construction, 2014)

NELSON MANDELA UNIVERSITY

Better practice (9)

Rand Civils bus, Port Elizabeth (Anonymous, 2011)

NELSON MANDELA UNIVERSITY

Better practice (10)

CSV Construction bus, Port Elizabeth (Smallwood, June 2018)

Better practice (11)

Culvert construction within a trenched sheeted excavation, uMhlanga (Smallwood, 2007)

NELSON MANDELA UNIVERSITY

Better practice (12)

Culvert construction within a trenched sheeted excavation, uMhlanga (Smallwood, 2007)

NELSON MANDELA UNIVERSITY

Better practice (13)

‘Ladder’ hoist, Delft, Netherlands (Haupt, 2004)

NELSON MANDELA UNIVERSITY

Better practice (14)

Kerb lifter, United Kingdom (Godfrey, 2004)

NELSON MANDELA UNIVERSITY

Better practice (15)

Paver lifter, Manchester, United Kingdom (Smallwood, 2016)

NELSON MANDELA
UNIVERSITY

Better practice (16)

Pre-cast pre-stressed hollow core slab section (SA Builder Bouer, 2004a)

Better practice (17)

Pre-cast pre-stressed hollow core slab section (SA Builder Bouer, 2004b)

NELSON MANDELA UNIVERSITY

‘Safetyitis’

- The use of safety as an alleged all-encompassing term must cease!
- With respect to South Africa, the Occupational Health and Safety Act (OHSA) replaced the Machinery and Occupational Safety Act (MOSA) in 1993
- The health issues are greater than the safety issues, and worse, are latent as opposed to patent
- Two aspects in terms of health, occupational and primary health, which in cases, are inter-related (Smallwood, 2022)
- Furthermore, the No. 1 H&S issue in construction, globally, is mental health, which is a health and well-being issue (Smallwood, 2023)

NELSON MANDELA UNIVERSITY

‘Cost, quality, and time’

- The reference to the passé paradigm of cost, quality, and time as the set of criteria by which projects’ success are measured must cease!
- Doing so marginalises H&S and confirms ignorance with respect to the synergistic role H&S plays in overall project performance, including client satisfaction
- Such reference also marginalises developing an H&S culture and reflects a lack of respect for people

NELSON MANDELA UNIVERSITY

Quality management

- No H&S without adequate quality management
- Quality means ‘conformance to requirements’ i.e., there is no ‘low’, ‘medium’, or ‘high’ quality!
- Within each project stakeholder organisation
- Project wide quality plans

NELSON MANDELA UNIVERSITY

‘H&S costs money!’

- A further phrase that must cease to be used!
- The cost of accidents (COA) is a prompt in terms of the ‘economics of H&S’
- Ideal as all stakeholders can relate thereto, and it can be expressed as a percentage of the cost or value of a project, or the value of completed construction on a macro scale
- In South Africa this was estimated to be between 4.3% and 5.4% of the value of completed construction, whereas the cost of prevention (COP) is estimated to be between 0.5% and 3% of project costs (Smallwood, 2004) – the COA is > the COP
- Therefore, H&S is a ‘profit centre’

NELSON MANDELA UNIVERSITY

H&S must be a value not a ‘priority’

- Often H&S is referred to as a ‘priority’
- Given that priorities may change daily, H&S should be a value i.e., H&S must always be the first consideration, and all activities must be ‘structured around it’
- Consequently, construction stakeholders must be able to deal with conflicting ‘priorities’

NELSON MANDELA UNIVERSITY

Respect for people and 'People are our most important resource' (1)

- Respect for people is the catalyst for the value 'people are our most important resource'
- However, inadequate welfare facilities on site, among others, are not a manifestation of respect for people
- Supervisors and workers that are exposed to hazards and risk are people that have a body, mind, and a soul. They invariably have a partner, a family and are derived from a community
- This value is the foundation and catalyst for an H&S culture, performance on projects, and the sustainability of an organisation
- Then, there is the issue of working hours per day, and working days per week:

NELSON MANDELA UNIVERSITY

Respect for people and 'People are our most important resource' (2)

- Fatigue is a major issue, which militates against construction H&S, including mental health and well-being, productivity, quality, and time performance
- The question arises as to which project stakeholder(s) determine a project's duration, and on what basis?

NELSON MANDELA UNIVERSITY

‘Failure of management’ versus ‘accident’ (1)

- There is no such thing as an ‘accident’ (myth)
- Traditional definitions include, among others: ‘An unplanned event’:
  - Are ‘accidents’ unplanned? Absolutely not!
  - Any review will indicate that they are meticulously planned by default i.e., through actions and or omissions
- Consequently, given that the five functions of management work are planning, organising, leading, controlling, and coordinating, then unplanned events such as ‘accidents’ = ‘failure of management’ (reality)
- Effectively, this approach constitutes a philosophy, and ‘a state of mind’
- Schwartz (1995) refers to this ‘reality’ in *The Magic of Thinking Big*

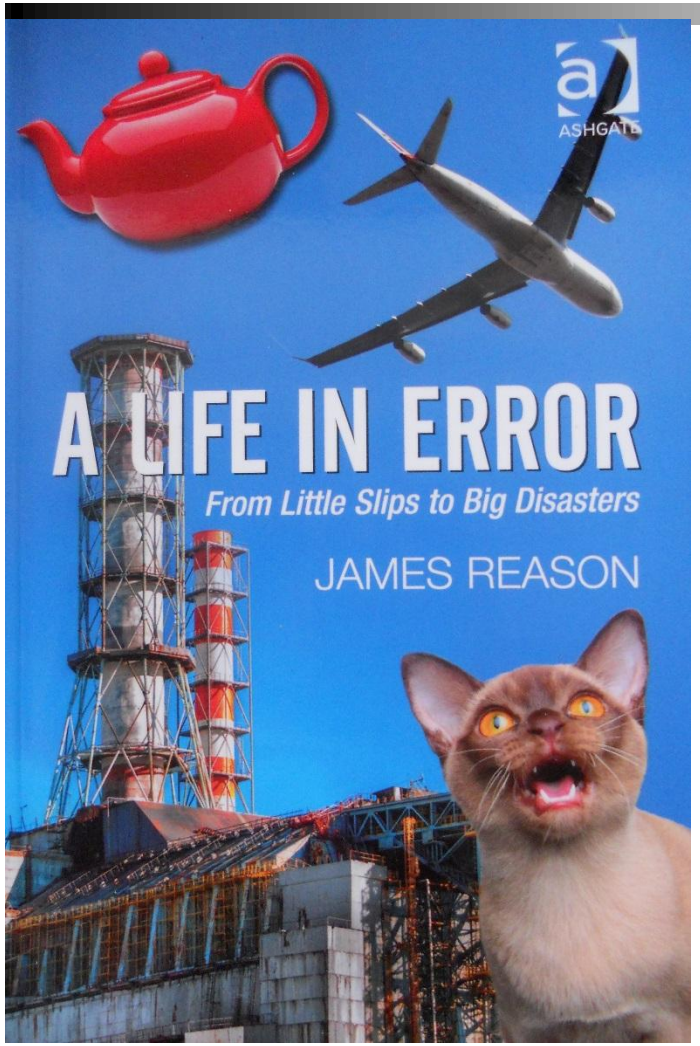
NELSON MANDELA UNIVERSITY

‘Failure of management’ versus ‘accident’ (2)

- There is a management echelon in all built environment stakeholder organisations, including client, construction H&S agent (CHSA), construction project manager (CPM), designer, and quantity surveyor

NELSON MANDELA UNIVERSITY

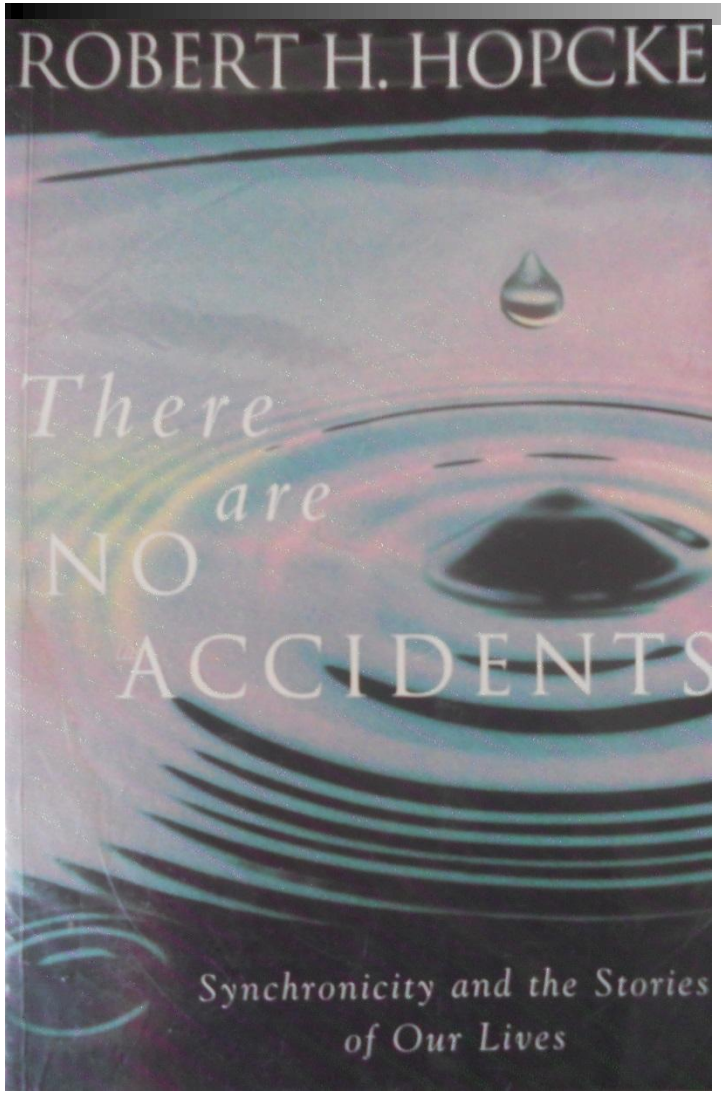
‘Failure of management’ versus ‘Accident’(3)



Chapter 8: Planning Failures

NELSON MANDELA UNIVERSITY

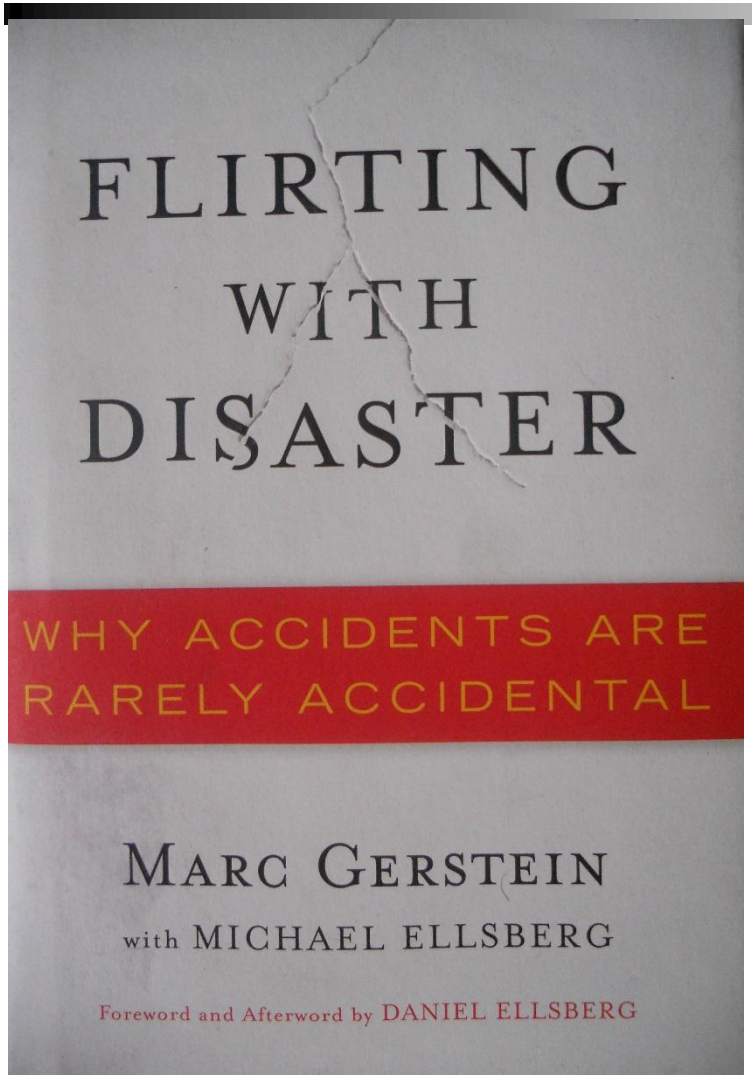
‘Failure of management’ versus ‘Accident’(4)



A different kind of coincidence, a confluence of events that shakes us up. Can see and feel a significance in the randomness. Like pure chance, or just a coincidence. However, Jung refers to it as synchronicity. (p. 3)

NELSON MANDELA UNIVERSITY

‘Failure of management’ versus ‘Accident’(5)



NELSON MANDELA
UNIVERSITY

‘Failure of management’ versus ‘Accident’(6)

Stellenbosch Collapse (Anonymous, June 2008)

NELSON MANDELA UNIVERSITY

‘Failure of management’ versus ‘Accident’(7)

Stellenbosch Collapse (Anonymous, June 2008)

NELSON MANDELA UNIVERSITY

‘Failure of management’ versus ‘Accident’ (8)

Stellenbosch Collapse (Anonymous, June 2008)

NELSON MANDELA UNIVERSITY

Elimination / Mitigation of ‘excusitis’

- Schwartz (1995) maintains unsuccessful people suffer from a mind deadening thought disease called ‘excusitis’
- Every failure has the disease in its advanced form
- However, the more successful the individual, the less inclined he / she is to make excuses

NELSON MANDELA UNIVERSITY

Statistics (1)

- The Federated Employers Mutual Assurance Company (RF) (Pty) Ltd (FEM) provides continually updated injury statistics relative to approximately 50% of the South African construction workforce, which they insure, which includes motor vehicle accidents (MVAs) during employment – full credit to them!
- The Compensation Fund was flagged on p. 38 of the cidb's H&S status report (cidb, 2009) in terms of the most recent injury statistics available being for the year 1999:
  - Perhaps the responsible Minister can advise with respect to the status quo in 2024?
  - Suffice to say, if the Department of Employment and Labour (DEL) cannot resolve this immediately, then they must hand the data over to an entity that can deliver - the DEL should consider FEM

NELSON MANDELA UNIVERSITY

Statistics (2)

- A further disease is ‘numberitis’ relative to injury statistics i.e., employment levels change, and therefore rates are the only option to monitor the level of injuries and trends

NELSON MANDELA UNIVERSITY

Leading (performance) versus trailing (outcome) indicators

- Injury statistics are referred to as ‘trailing’ or ‘outcome’ indicators:
  - Are of value in that they enable benchmarking and constitute motivators for action and interventions
  - Include, among others, the AR, FR, and DIIR
- However, ‘leading’ or ‘performance’ indicators constitute predictors of performance, and include, among others:
  - Percentage of supervisors that have received H&S training
  - Percentage of workers that have received hazard identification and risk assessment (HIRA) training
  - Percentage of designers that have received design HIRA training

NELSON MANDELA UNIVERSITY

The role of clients in construction H&S

- Clients initiate projects, provide the finance, or secure the finance therefore, and influence construction H&S directly and indirectly
- Indirectly through, among others, nature of the project, number of storeys, project location, project duration, selection and appointment of consultants, and ensuring adequate principal contractor financial provision for construction H&S
- Directly, through, among others, choice or influence of structural frame, and choice of materials
- ‘Better practice’ construction H&S clients have influenced construction H&S prior to the 2003 Construction Regulations
- Many clients are not knowledgeable or very knowledgeable with respect to construction H&S and quality management, and neither many non-CPM principal agents (PAs)

NELSON MANDELA UNIVERSITY

The role of project financiers

- The Environmental, Health, and Safety (EHS) Guidelines of the International Finance Corporation (IFC) (2007), which is part of the World Bank Group, constitute an example of the extent to which project funders endeavour to influence construction H&S
- Project financiers must ‘protect their interests’, which are all encompassing, not just H&S, quality, and time being obvious issues - therefore, they should:
  - Conduct rigorous project risk assessments
  - Include construction H&S and quality management criteria when pre-qualifying requests for project funding

NELSON MANDELA UNIVERSITY

Construction H&S agents (CHSAs)

- CHSAs are invariably appointed after Stage 1 ‘Project initiation and briefing’, and even worse, at stage 4 ‘Tender documentation and procurement’
- Then CHSAs are often not appointed by the client, but by PAs or another member of the design team - the Construction Regulations are very clear with respect to a direct appointment

NELSON MANDELA UNIVERSITY

The Construction Regulations (1)

- The 2017 Construction Regulations Guidelines cannot be deemed guidelines! No guidance *per se*!
- The industry confusion with respect to what an H&S specification should include must be addressed
- Then, the now 'infamous' H&S file, which is not an H&S file, but a collection of contractor collated project H&S documentation, must be addressed
- The H&S specification and H&S file issues were flagged on p. 39 of the cidb's H&S status report (cidb, 2009)
- Do the people involved with the revision of the Construction Regulations understand and appreciate, among others, the structure of the industry, 'project managing construction H&S', and 'designing for construction H&S'?

NELSON MANDELA UNIVERSITY

The Construction Regulations (2)

- CPMs were not mentioned and tasked in the 2003 and 2014 versions
- Who should be responsible for integrating construction H&S into projects?
  - Given that CPMs manage design delivery, the procurement process, and oversee the construction process, they are ideally suited to integrate construction H&S into projects, and to accept ‘single point’ responsibility for the integration thereof

NELSON MANDELA UNIVERSITY

Barriers to entry

- Are there barriers to entry, and if so, what do they entail?
- What generic, H&S, and quality skills training did most supervisors, skilled, semi-skilled, and general construction workers receive?
- What qualifications does a contractor's staff need to possess, what resources does a contractor need to possess, and what H&S and quality management interventions do they need to undertake, to register with the cidb? This also applies to contractors applying for membership of employer associations
- Then, the reality is that contractors do not have to register with the cidb or become a member of an employer association to undertake private sector work

NELSON MANDELA UNIVERSITY

Inclusion of construction H&S in registration and membership processes

- Criteria such as H&S management systems, and quality management systems must be included in the cidb and NHBRC contractor registration processes, and employer associations' e.g., MBAs and SAFCEC, membership application processes

NELSON MANDELA UNIVERSITY

The ‘Scope of Work for Categories of Registration’

- The six statutory built environment councils must review their respective ‘Scope of Work for Categories of Registration’ to ensure that they reflect ‘better practice’ H&S, and quality management, and reality
- Currently, the focus of registration is on projects:
  - However, the construction of projects is undertaken from the business of construction, and not *vice versa*, the reality being that a construction business, including the owner, may not be knowledgeable with respect to construction, and / or H&S and quality management
  - Furthermore, the business of construction influences H&S and quality management on projects - this analogy applies to many clients

NELSON MANDELA UNIVERSITY

Procurement

- Clients must pre-qualify, prior to appointment, CPMs, CHSAs, designers, and quantity surveyors (QSs) in terms of ‘designing for construction H&S’ competencies, systems, and processes, and quality management competencies, systems, and processes
- Clients must pre-qualify contractors in terms of H&S management systems, workers’ compensation insurance claims (loss) ratios, other H&S performance measures, and quality management systems relative to both private and public sector projects
- The assessment of private and public sector bids or tenders must include H&S and quality management criteria
- A ‘letter of good standing’ is a given in terms of H&S management, and hardly constitutes a ‘filter’

NELSON MANDELA UNIVERSITY

Financial provision for construction H&S

- Although a procurement issue, it requires special ‘treatment’
- The Joint Building Contracts Committee (JBCC) has been ‘lobbied’ with respect to recognising the need for the inclusion of a detailed H&S Preliminaries section in Bills of Quantities since 2013 to no avail
- This need has been confirmed courtesy of extensive research conducted by the presenter and several co-researchers / authors, and published globally, among others, by Emuze & Smallwood (2014)

NELSON MANDELA UNIVERSITY

Construction H&S documentation

- One of the conclusions arising from the study H&S documentation in construction is current H&S documentation "is inappropriate in that it can be complex, generic, lengthy, onerous, repetitive (duplicative), and vague; it engenders dubious practices; it generally 'does not add the potential value'; it shifts the focus from the physical process, and it could be improved." (Smallwood & Bester, 2020)
- Construction H&S became a 'paper exercise' upon the gazetting of the Construction Regulations in 2003
- Although H&S documentation is necessary, it must never compete with, or overshadow the 'physical process and activities'

NELSON MANDELA UNIVERSITY

Multi-stakeholder project H&S plans

- The need for such plans has been recommended, including to the cidb (Smallwood & Haupt, 2010)
- Should clearly indicate the construction H&S interventions per stakeholder for each of the six stages of project
- Should be complemented by similar plans for the environment, risk, and quality

NELSON MANDELA UNIVERSITY

Construction H&S is a construction management line function

- Construction H&S should and must be a construction management line function, as cost, environment, productivity, quality, and time
- The Construction Regulations' requirement to appoint a construction H&S officer (CHSO) resulted in the perception that construction H&S is the function of the CHSO
- Furthermore, the construction manager is responsible for the physical construction process

NELSON MANDELA UNIVERSITY

Inspections and review

- The OH&S Inspectorate, DEL, must review client and designer contributions to construction H&S:
  - The HSE's initiatives in the UK in this respect should be noted (Charnock, 2004)
- 'Construction H&S cannot be inspected into the built environment'
- H&S compliance is the third stage in a five-stage journey (Figure 1, Slide 7)

NELSON MANDELA UNIVERSITY

Section 32 Inquiry Reports and Professional Association / Statutory Council 'investigations'

- These must be expedited expeditiously bearing in mind the families of deceased workers and others, the need for closure, and to communicate 'lessons learnt'
- Then, how many construction-related Section 32 reports have been published other than the Section 32 Investigation Report into the Injaka Bridge Collapse of 6 July 1998 (Department of Labour, 2002)?

NELSON MANDELA UNIVERSITY

Surface competencies, core competencies, and emotional quotient (EQ)

- Competency and more specifically, 'competent' person is frequently referred to, and certainly within legislation, regulations, and standards:
  - Competent generally refers to knowledge, training, and experience, and where applicable, qualifications specific to the work or task
  - Is this sufficient? No!
- Singh (2004) suggests that competencies are divided into two categories; the surface (knowledge and skills), which are required to be at least effective, and core, which distinguishes superior performance from average performance
- All 15 EQ attributes / states are more than important in terms of managing construction H&S and contribute to optimising H&S performance on construction projects to more of a major than a minor extent (Smallwood, Emuze, and Bloomberg, 2014)

NELSON MANDELA UNIVERSITY

Skills training

- Given that construction H&S and quality are inter-related, workers must be empowered to ‘do work right, first time, every time’, while working in a healthy and safe manner and environment
- The ‘abolition’ of the apprenticeship scheme, changed industry structure, and lack of ‘barriers to entry’ have collectively marginalised training, H&S, productivity, and quality

NELSON MANDELA UNIVERSITY

Adopting a developmental approach to support small contractors

- This recommendation is recorded on p. ii of the cidb's H&S status report (cidb, 2009)
- During 2024, FEM initiated a mentoring programme, facilitated by the MBAs
- This structured programme is likely to contribute to an improvement in small contractors' H&S performance

NELSON MANDELA UNIVERSITY

Tertiary built environment education

- The findings and recommendations relative to the Final Report on the Construction H&S Framework for Tertiary Built Environment Education prepared for the Council for the Built Environment by the presenter, 7 July 2016, must be implemented (Smallwood, 2016):
  - The report includes, among others, a table, which indicates the degree of support for the inclusion of 25 aspects in 13 disciplines' tertiary-built environment programmes
  - Either a construction H&S subject, or a component of a subject
- Statutory council and professional association accreditation panels must focus on and interrogate (note the word) the extent to which construction H&S and quality management are embedded (not addressed) in such programmes

NELSON MANDELA UNIVERSITY

Funding of construction H&S training, tertiary education, and research

- The industry must fund H&S-related training, tertiary education, postgraduate studies, and research - ‘What are the Rand sub-totals relative to the aforementioned?’
- ‘Other than the National Research Foundation, and universities to a degree, which other entities fund H&S-related tertiary education, postgraduate studies, and research?’
- It should be noted that FEM funds H&S-related training via the MBAs and SAFCEC

NELSON MANDELA UNIVERSITY

Digitalisation of construction

- This has the potential to contribute to improving, among others, construction H&S and quality performance on projects as determined by the presenter and other researchers
- However, it is not the panacea for the H&S challenges, and will require commitment, funding, and training

NELSON MANDELA UNIVERSITY

Establishment of an 'H&S Agency'

- This recommendation is recorded on p. ii of the cidb's H&S status report (cidb, 2009)
- Such an agency, as the HSE in the UK, should be an H&S focus point for construction H&S promotion, awareness, information, advice, and related research

NELSON MANDELA UNIVERSITY

Genuine concern for and commitment to construction H&S by the media as opposed to sensationalism

- The study 'The role of the media in construction H&S' (Smallwood & Venter, 2001) interrogated a range of related issues
- The media must address construction H&S on a consistent basis, not only when an 'accident' occurs, as the former reflects commitment to construction H&S, as opposed to the latter e.g., George building collapse
- However, it should be noted that several contemporary H&S and construction magazines have addressed construction H&S over decades
- Media editors must conduct a self-audit!

NELSON MANDELA UNIVERSITY

Conclusions

- Construction H&S is a multi-stakeholder issue, which requires an integrated effort managed by a single-point responsible 'conductor'
- Construction, including Construction Management, is an 'art, science, and profession'
- There is an unhealthy 'H&S culture' in South African construction in the form of beliefs, approaches, and practices
- There are pre-requisites for focusing on H&S and the realisation of optimum H&S
- A range of factors individually and collectively militate against construction H&S and quality
- H&S and quality problems persist!
- 'You do not learn from a second kick from a donkey!' You only generate fatalities and injuries!

NELSON MANDELA UNIVERSITY

Recommendations (1)

- A paradigm shift is necessary in terms of how construction H&S is viewed, promoted, and approached
- Continuous improvement is required to achieve ‘better practice’ construction H&S
- Use ‘People are our most important resource’ and ‘H&S is a profit centre’ as rallying points to mobilise the built environment
- The Construction Regulations must be re-visited, proper guidelines published, and a ‘conductor’ must be identified to ensure that H&S is integrated into construction projects using, among others, multi-stakeholder project H&S plans
- The ‘Scope of Work for Categories of Registration’ must be re-visited to ensure that they reflect ‘better practice’ H&S, and quality management, and reality

NELSON MANDELA UNIVERSITY

Recommendations (2)

- ‘Barriers to entry must exist’, and construction H&S and quality must be included as criteria in registration and membership processes, and during the assessment of tenders or bids in both the private and public sectors
- Contract documentation must include detailed references to construction H&S, and facilitate financial provision, therefore
- Generic mandatory skills training must be reinstated, and tertiary built environment education is a must for registered persons, and practitioners involved in the construction industry - such education and training must address construction H&S and quality management
- The OH&S Inspectorate, DEL, must review client and designer contributions to construction H&S, and intensify inspections of H&S practices on construction sites

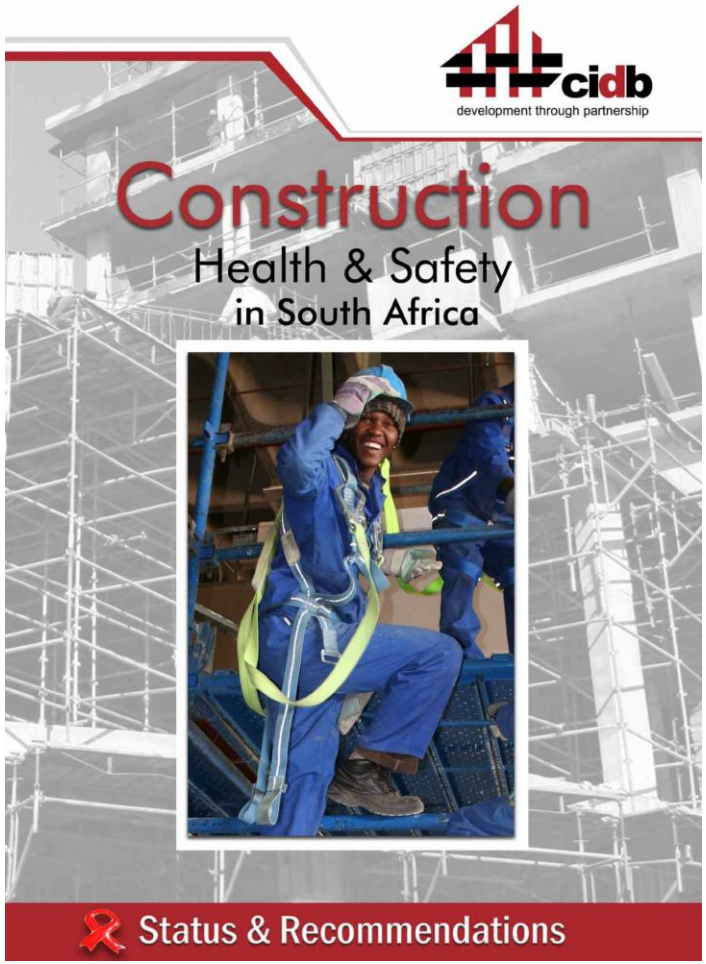
NELSON MANDELA UNIVERSITY

Recommendations (3)

- Section 32 Inquiry Reports and Professional Association / Statutory Council ‘investigations’ must be expedited expeditiously
- An H&S Agency must be established, and the industry must fund tertiary construction H&S education, and research

NELSON MANDELA UNIVERSITY

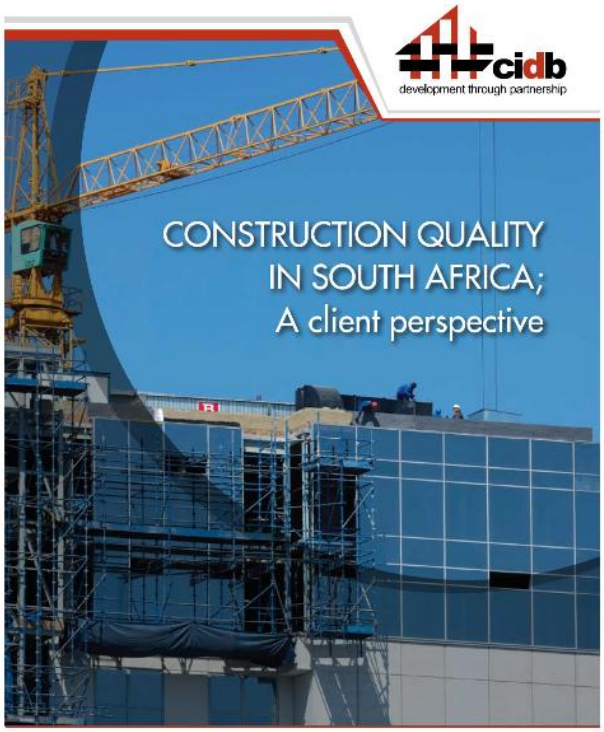
Recommended reading (1)



cidb (2009).

NELSON MANDELA UNIVERSITY

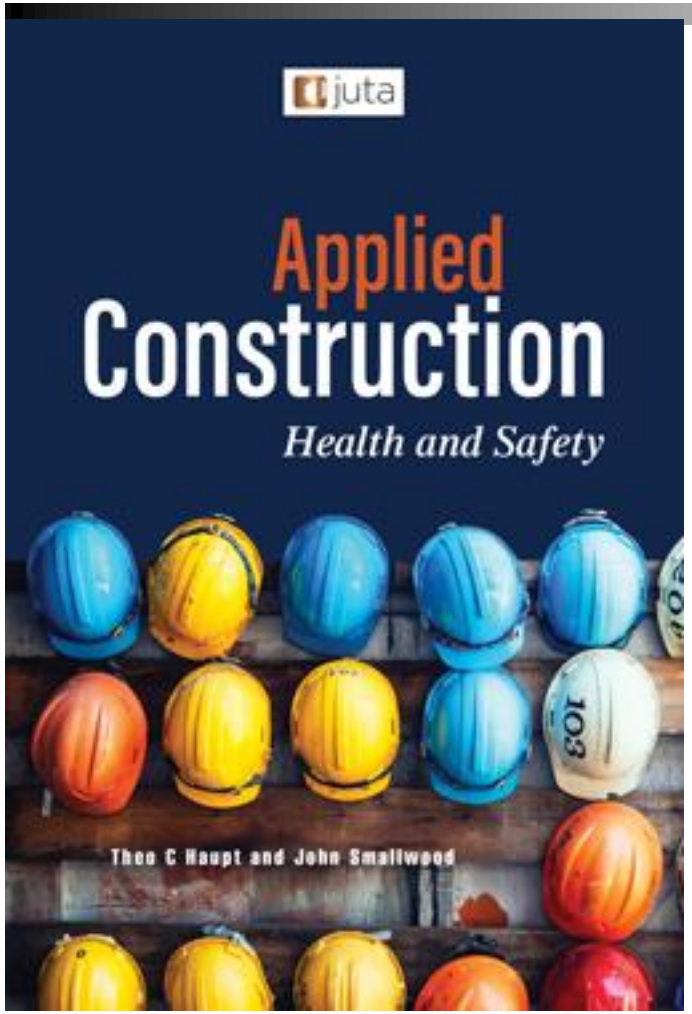
Recommended reading (2)



cidb (2011).

NELSON MANDELA UNIVERSITY

Recommended reading (3)



Applied Construction Health and Safety (Haupt & Smallwood, 2023).

NELSON MANDELA UNIVERSITY

References (1)

- Bakkes, A. 2001. *TygerBURGER*, 13 June, 2C.
- Brenner, H. 2001. Flawed floor collapses. *Tabletalk*, 14 June, 3.
- Charnock, D. 2004. *Designer Initiative 2004 Report*. Manchester: Health and Safety Executive (Construction Division).
- Construction Industry Development Board (cidb). 2009. *Construction Health & Safety Status & Recommendations*. Pretoria: cidb.
- Davis, C. 2001. *Pretoria Beeld*. 18 October, 1.
- Department of Labour. 2002. *Section 32 Investigation Report into the Injaka Bridge Collapse of 6 July 1998*. Pretoria.
- DispatchLive. 2015. Beacon Bay hotel floor collapses in the rain, no injuries reported. [online]. Johannesburg: TimesLive.

References (2)

Available: http://www.timeslive.co.za/local/2015/07/30/BeaconBayhotelfloorcollapsesintherainnoinjuriesreported [Accessed 13 August 2015]

- Emuze, F.A. and Smallwood, J.J. 2014. Financial Provision for Construction Health and Safety (H&S). In: *Proceedings of the Construction Research Congress*, Atlanta, Georgia, 19-21 May 2014, 1881-1890.
- Federated Employers Mutual Assurance Company (RF) (Pty) Ltd (FEM). 2024. Statistics by Subclasses. Johannesburg: FEM. [online] Available at: https://roe.fem.co.za/Stats#/Subclasses-Stats [Accessed 20 May 2024]
- Foster, P. and Hoult, S. 2013. The Safety Journey: Using a Safety Maturity Model for Safety Planning and Assurance in the UK Coal Mining Industry. *minerals*, 2013(3), 59-72.

NELSON MANDELA UNIVERSITY

References (3)

- Gerstein, M. and Ellsberg, M. 2008. *Flirting with Disaster Why Accidents are Rarely Accidental*. New York: Sterling Publishing Co., Inc.
- Health and Safety Executive (HSE). 2024. *Work-related fatal injuries in Great Britain, 2023.* Bootle, Merseyside: HSE.
- Herald Live. 2024. Questions raised over safety checks during construction of collapsed George building. [online]. Port Elizabeth: Herald Live. Available: https://www.heraldlive.co.za/news/2024-05-13-questions-raised-over-safety-checks-during-construction-of-collapsed-george-building/ [Accessed 16 May 2024]
- Hopcke, R.H. 1997. *There are No Accidents Synchronicity and the Stories of our Lives*. London: Macmillan.

NELSON MANDELA UNIVERSITY

References (4)

- International Finance Corporation (IFC). 2007. *Environmental, Health, and Safety (EHS) General Guidelines*. Washington, D.C.: IFC.
- Markman, I. 2003. *The Herald*, 14 November, 10.
- Reason, J. 2013. *A Life in Error From Little Slips to Big Disasters*. Farnham, Surrey: Ashgate Publishing Limited.
- Reuters in Smillie, S. and RDM Newswire. 2015. Two killed after bridge collapses. *The Herald*. 15 October, p. 2.
- Safe Work Australia (SWA). 2023. *Work-related injury fatalities*. Canberra: SWA.
- Schwartz, D.J. 1995. *The Magic of Thinking Big*. London: Pocket Books.
- Singh, S. 2004. *The Handbook of Competency Mapping*. New Delhi: Response Books.

NELSON MANDELA UNIVERSITY

References (5)

- Smallwood, J.J. 2004. Optimum cost: The role of health and safety (H&S). In: Verster, J.J.P. (ed.) *Proceedings International Cost Engineering Council 4th World Congress*, Cape Town, April 2004. International Cost Engineering Council, 2004: CD-Rom Smallwood-J- Optimum Cost-Health & Safety.pdf
- Smallwood, J.J. 2016. *Final Report on the Construction Health and Safety (H&S) Framework for Tertiary Built Environment Education*. Port Elizabeth: Prof John Smallwood.
- Smallwood, J.J. 2021. Keynote Address 'Overview of the South African Construction Industry', *The cidb Centre of Excellence 'The State of the South African Construction Industry Seminar'*, Irene, Gauteng, 21 October 2021.
- Smallwood, J.J. 2022. The 'Health' in Health and Safety in South African Construction. *Shape Shifter*, April / May 2022, 12-15.

NELSON MANDELA UNIVERSITY

References (6)

- Smallwood, J.J. 2023. Mental Health in Construction. Master Builders KwaZulu-Natal News & Info: Occupational Health & Safety. Monday 03 July 2023. https://www.masterbuilders.co.za/news/645017/Mental-Health-in-Construction-.htm
- Smallwood, J.J. 2024. Unpublished Statistics, *Association of Schools of Construction of Southern Africa (ASOCSA) 'The state of the South Africa construction industry' survey (2024)*.
- Smallwood, J.J. and Bester, D. 2020. Proliferation of Health and Safety Documentation in Construction? In: *Proceedings The 8th International Conference on Construction Engineering and Project Management*, Hong Kong SAR, 7 - 8 December 2020, 243-248.

NELSON MANDELA UNIVERSITY

References (7)

- Smallwood, J., Emuze, F. and Bloomberg, C. 2014. Exploring the Importance of Emotional Quotient in Construction: Perspectives from Health and Safety Professionals in South Africa. *Journal of Construction Project Management and Innovation*, 4(1), 721-733.
- Smallwood, J.J. and Haupt, T.C. 2010. *Guidelines for Integrated Multi-Stakeholder Construction Health and Safety Plans*. Port Elizabeth: Construction Research Education and Training Enterprises (CREATE).
- Smallwood, J.J. and Venter, D. 2001. The role of the media in South African Construction Health and Safety (H&S). *The Australian Journal of Construction Economics and Building*, 1(1), 43-52.
- Travers, R. 1998. *Lowvelder*, 10 July, 1.

NELSON MANDELA UNIVERSITY

References (7)

- Smallwood, J., Emuze, F. and Bloomberg, C. 2014. Exploring the Importance of Emotional Quotient in Construction: Perspectives from Health and Safety Professionals in South Africa. *Journal of Construction Project Management and Innovation*, 4(1), 721-733.
- Smallwood, J.J. and Haupt, T.C. 2010. *Guidelines for Integrated Multi-Stakeholder Construction Health and Safety Plans*. Port Elizabeth: Construction Research Education and Training Enterprises (CREATE).
- Smallwood, J.J. and Raliile, M. 2025. *Unpublished 'The State of South African Construction Health and Safety' Statistics*. Port Elizabeth: Association of Construction Health and Safety Management (ACHASM).

NELSON MANDELA UNIVERSITY

References (8)

- Smallwood, J.J. and Venter, D. 2001. The role of the media in South African Construction Health and Safety (H&S). *The Australian Journal of Construction Economics and Building*, 1(1), 43-52.
- Travers, R. 1998. *Lowvelder*, 10 July, 1.